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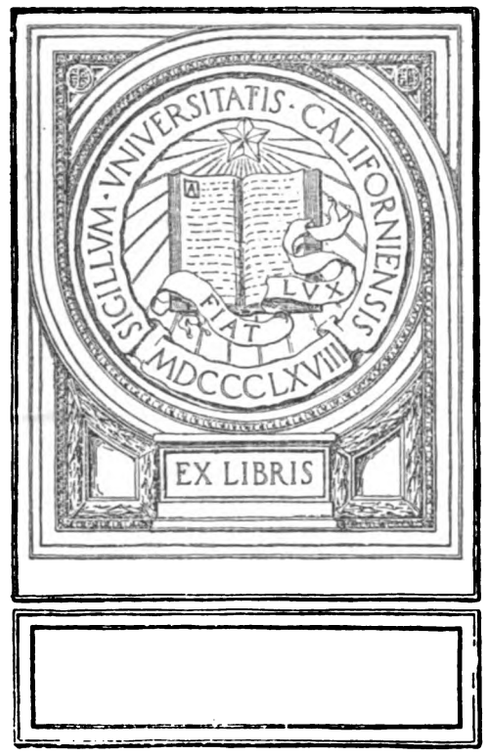
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The ARCHITECT

A JOURNAL OF STRUCTURAL & DECORATIVE ART.

Proprietors: GILBERT WOOD & CO. LTD.

Editor: HERBERT W. WILLS, F.R.I.B.A.

Telephone: Holborn 4725.
Telegrams: "Architonia, Fleet, London."

Registered as a Newspaper at the General Post Office

Vol. CVII.—No. 2768. FRIDAY, JANUARY 6, 1922. Price 6d. By Post 7½d.

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W. H. Smith & Son, The Arden Press, Stamford Street, London, S.E.1

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VOL. CVII.—2768. THE ARCHITECT JANUARY 6, 1922

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The Adventurer.

SURPRISE is frequently expressed at the mediocre ability which often seems to be all that is required for success in the lands which lie at the confines of modern civilisation, and which are commonly called new countries. These included in the near past Western America and Canada and a large part of Australia, but would probably now more fittingly describe the Near East, Egypt, and Spanish America. In reality what is most wanted in such places is not so much professional ability as the conscience of a pirate and the sense of adventure of a seventeenth-century explorer. To these should be added a skin compared with which an elephant's might be likened to tissue paper and the charity which makes a man at home in any company. It will be seen that the man who possesses such qualifications can hardly be described as being mediocre; he is in reality rarely endowed with qualifications compared to which professional ability, as we know it, is commonplace. If architecture in such localities does not flourish as an art it may yet afford a lucrative occupation when coupled with other forms of enterprise open to those whose qualifications we have briefly touched upon. We remember hearing of a certain architect who emigrated to a colony, which shall be nameless, and who, in a season of building depression, seemed to draw commissions by a species of magnetic influence from unsuspected quarters.

He came across a colleague, to whom he proposed partnership—on terms—and we heard from the man concerned what those terms were. He was to bind himself to open up a joint business with the proposer in one of two places to be named—on conditions—but was first to bind himself not to go there independently. Our informant, who was curious to acquire information, gave the written undertaking, and found that one of the towns mentioned was Salt Lake City. He then asked how this would-be partner suggested starting a practice, and received the following advice: "I should find out what the most influential religious body was and attend their church, teaching in their Sunday schools." He was asked whether this would apply to the Mormons, and received the answer "Certainly." The partnership deed was never signed, but the career of the architect in question has been one of great success. It is true his activities have not been entirely limited to architecture, but covered such items as hurrying up a job lot of old iron chains to a new mining camp, out of which he made a profit of a good many thousand pounds. He had taken St. Paul's advice, and was certainly all things to all men. We are reminded of this by an account given in the "Egyptian Gazette" of the manner in which in that happy land a man may become a successful contractor. The essentials are given as the command of a certain sum of money—which may be obtained in many ways—a knowledge of several languages, including their stronger vernacular expressions and a total absence of any knowledge of building. With these qualifications the contractor takes possession of a suitable plot belonging to some one else in an expensive locality. The owner at once disputes the claim, and the matter is brought before the Mixed Courts, in which the contractor's lawyer succeeds in getting a postponement of the hearing for four years. This gives time for building, and after having obtained a design —not necessarily to be followed—which is approved by the local authority, after payment of fees, building operations are commenced, and in the direction of the workmen the contractor's linguistic abilities find scope. If the house should not be completed before the owner of the site brings his action it is easy to obtain a further postponement, which will enable the contractor to complete and sell the house before the case is tried, when he can plead that he is no longer concerned in the matter.

In countries like India, and, indeed, throughout the East, the architect, as we know him, is often at a discount. What is wanted by the European population of such lands is the man who can with the least expense get together buildings which will last a brief span of years and provide heavy interest on a comparatively small outlay. Nothing is further from such men's minds than the study of the indigenous civilisations which they are placed in; nothing is further from the minds of those who employ them than the ideal of building up on the foundation of the past a new tradition suited for the future. Such buildings are the untidy evidence left by Western people that they are in the East for a spell to make money with which to retire to Europe as soon as possible. This is why the English, despite an occasional public building of merit, are leaving no tolerable artistic trace on India, nor do we see how matters are likely to be much improved, and this is why good modern architecture can only be looked for over a limited area of the surface of the globe. It is natural that the adventurer of every type, rather than the architect as we would picture him, is everywhere in request. Even in our more favoured circumstances we have the irrefutable fact that the smaller class of speculator provides the bulk of mankind's habitations in town and country alike. If a change for the good is to be wrought all over the world's surface it must come from the hands of men who, having æsthetic instincts and tastes, have yet the quick adaptability to circumstance which enables them to step into the breach and to beat the adventurer, purer and simple, at his own game. Are we not as a profession too hidebound by the trammels of a carefully cultivated professionalism, which, to use a simile, induces us to cultivate hot-house flowers to the neglect of those which grow everywhere by the roadside? Has not the adventurer, whose career we have crudely touched on, been allowed by us to carry the torch needed by mankind when men of parts and education could have done it better, and perhaps found profit and occupation in doing it? Should we not increase our own value to the world by taking a more liberal view of humanity and of its needs? The modern world needs men rather than educated fossils to bring about the consummation of civilisation. We see this, if we think, in many phases of

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our lives. How many of those educated among cultivated English surroundings in old towns and Universities would be better if they could have experience of the rough-and-tumble life of a new community, and how much good would be done to those members of new communities were they brought into close contact with men who had been brought up in more cultured surroundings. For the dangers of civilisation lie in the ignorance of its varied sections of the other strands which go to make up the complex modern state whose component elements become unduly specialised. We want to bring together classes not by robbing one class of what it has acquired for the temporary benefit of another, but by doing away with unnecessary barriers and learning to eliminate the artificial prejudice which prevents them from doing justice to each other.

We should all of us be adventurers throughout our lives; observing the instincts of our fellows, trying to understand their wants, and discovering how we can make profit by giving them what they want: and specialised training will do harm rather than good in the end if it leads mankind to divide itself up into self-contained and separated compartments, which tend to obscure the broader instincts of humanity which should bind us together.

We have to face the fact that every man who requires building done will not take the trouble and responsibility of employing an architect in his usual professional capacity, but will gladly use the services of men who will take financial responsibility and have a power of organisation. If such work falls into the hands of men who are untrained, architecture suffers; if the men who undertake such work are not blameless in the methods this need not necessarily be so. We should be wide enough in our views to be ready to include all men engaged in the active work of providing the buildings needed by the world, and the cause of art will not suffer by the recognition that much of such work is built on a basis of finance which can be readily understood and practised by many of us. The "architectural adventurer" might well fill a position in our ranks no less honourable than that of the old "merchant adventurer" who in the past helped to build up our national prosperity.

Illustrations.

UNIVERSITY COLLEGE, DUBLIN. R. M. Butler, Architect.



The illustrations given show some of the science fittings designed for this building, while an article on "The Design of Chemistry Laboratory Fittings," by Mr. Alan E. Munby, M.A., F.R.I.B.A., pp. 6-11, refers to the same subject.

Notes and Comments.

Higher London.

Now that the R.I.B.A. has definitely reported against the proposal to legalise the erection of higher buildings than those allowed under the existing Acts, it is greatly to be hoped that they will organise a concerted movement for the entire abolition of the present law of ancient lights, which, we quite agree, would be of much greater practical utility than any legislation which would sanction the erection of higher buildings in limited areas. The one measure would, unless applied with extreme care, make London more ragged and uneven than before; the other would permit of the reasonable filling up of most unsightly gaps, and would increase the saleable value of property in almost every district in London and our larger towns. The only harm it would do is to destroy the unfair benefit a number of individuals have hitherto enjoyed, and to somewhat diminish a lucrative branch of the surveyor's practice; but these considerations should not, it seems to us, be weighed in the balance against what is a clear case of justice to the majority, while most architects would be greatly relieved to be rid of the fear of overlooking some ancient light or other when advising their clients as to some property hemmed in by other buildings.

The Birmingham Hall of Memory.

Mr. J. A. Swan, whose design we commented on in our criticism of the above competition, writes to say that the attenuation of the internal order to which we referred was intended to counteract the optical foreshortening produced by looking at the order in a confined space. It is quite possible that in a correctly drawn perspective view or photograph of such an interior the recognised proportion would be restored.

It is always a little difficult to decide whether it is best to correct optical defects or not; sometimes we like to see such corrections made, at others we correct such distortion mentally, and are better pleased to do so than to know it has been done for us. Too much correction

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sometimes has the unfortunate result of making architectural objects look smaller than they would otherwise do, as the eye unconsciously allows for effects of distance which are corrected. We feel some doubt whether Mr. Swan in this instance is right or wrong in his methods, but are much interested to have his explanation.

The Building Guilds.

The Building Guilds announce that, as public contracts for housing will no longer be obtainable, they are going to launch out and undertake work for private individuals. In this legitimate field we wish them all success. If they can build better and more cheaply than the contractor the public will have the benefit of their skill, if not, their occupation will be gone. The test is in any case a perfectly fair one, uncomplicated by subsidies and grants. The maximum fixed price may, or may not, appeal to the average man, and this will depend entirely on whether he thinks he has good grounds for believing that savings will be effected. A few will no doubt employ the Guild because they like its semi-fraternal organisation, but most of us are governed by the more commonplace aim of doing the best we can for ourselves. The ethical position of the Guild, or that of the contractor, is a matter of unimportance to the public, whose approval of either will depend on what it has to pay and what it receives.

We are very glad to see such an experiment tried, and shall watch its fortunes with interest.

The Market Value of Small Houses.

Mr. Arthur Brackett, a past-President of the Auctioneers' Institute, in his review of the year, says that:—

Though the cost of the materials required for a house, such as bricks, cement, timber, glass, &c., have fallen substantially, they are still far above pre-war prices, and the cost of joinery is as high as ever. In addition to this, builders' fittings, such as baths, stoves, &c., are only obtainable, as has been pointed out in recent articles in *The Times*, at a very high figure. But even were the whole of the bricks, timber, tiles, stoves, glass, sanitary fittings, and other materials to be had for nothing, a house could not be erected to-day at anything like pre-war cost, as the labour alone comes to more than the pre-war cost of the house, and until this state of things is altered it cannot be expected that new houses will be forthcoming in anything like the numbers required. More houses of moderate size are wanted to-day than was the case twelve months ago, and the shortage appears likely to increase.

The foregoing facts point to the conclusion that no fall in the market value of the house of moderate size need be expected for a very long time to come. In fact, every indication is in the other direction.

It is to be hoped that the facts stated above will result in people overcoming their reluctance to build—a reluctance due to the belief that prices are likely to fall in the near future. If it were not for the fact that many houses have been sold for less than it would now cost to build them, because of the owners' ignorance of their real value, it is probable that much more building would have been put in hand, even in these times of trade depression.

Old London Bridge.

Mr. Percy Lovell writes to "The Times" to advocate the retention of the arch of old London Bridge, recently excavated, and its preservation *in situ*, the Bridge House Estate being asked to accept a reduced rent for the site in consideration of the floor space sacrificed. As we have said, we see very little in this suggestion, which has already been made by others. The arch in itself is not a thing of great beauty or interest, nor do we believe many would make a pilgrimage to see it. It would be far more to the point to have a really fine model made of the whole bridge at some particular period of its history and to have this placed in the Guildhall Museum. The presentation of a small amount of actual stonework because of its associations, and apart from its æsthetic interest, is too much like the preservation of relics, while it cannot be said to be supported as that is by the tenets of any faith. We are sometimes reminded of Mark Twain's American traveller's remark when he was shown the actual writing of Columbus and offended the susceptibilities of the guide. Let us by all means preserve what is worthy of preservation, but, at the same time, let us avoid the worship of relics of the past for the sake of associations alone.

Correspondence.

To the Editor of THE ARCHITECT.

Unification.

SIR,—I find in your issue of December 16 another letter on Unification and Registration, in which we are told again that the Council of the R.I.B.A. approves of opening the doors of the Institute to "all architects of the United Kingdom," and the words are added "without test or examination." The letter is signed by Mr. A. W. S. Cross and Mr. George Hubbard.

Leaving for the present the question whether anyone should publicly oppose the policy of the Council while holding the position of a Vice-President, I wish to point out once more that there is, and has been, no question of admitting any but qualified men. At the Council meeting on May 23, a report of nine printed pages, setting out Scheme A and Scheme B, was dealt with, and the following very brief resolution passed:

"That the principle of Scheme A, namely, the bringing of all architects of the United Kingdom into membership of the R.I.B.A., be adopted as the basis for Unification."

(Scheme B was the Federation Scheme.) Scheme A refers throughout to "qualified" architects, and to qualified architects only, and it provides for them to be placed in the class appropriate to their qualifications. Both signatories of the letter had this report, both of them understand the nature of the principle involved: is it "cricket" for them to endeavour to convey by means of the Press the impression that the R.I.B.A. proposes to admit without test or examination all who apply? The thing is, after all, almost too grotesque to be taken seriously. The writers of the letter know, and I now remind them of it, that it is proposed to set up a Board of Incorporation which shall be the sole judge of the qualifications of candidates. One welcomes sound criticism, but this criticism is neither sound nor ingenuous.

As for Registration, the writers of the letter are entitled to the opinions they hold on the probability of securing it, but they and all others may rest assured that we shall never get it unless we can go to Parliament with the solid backing of the whole profession.—Yours, &c.,

ARTHUR KEEN,
Hon. Secretary, Committee on Unification and Registration.

4 Raymond Buildings,
Gray's Inn, W.C., 1,
Dec. 31, 1921.

Forthcoming Events.

Friday, January 6.—Town Planning Institute.—Meeting at 92 Victoria Street, Westminster, S.W. Discussion on "Zoning," to be introduced by Mr. G. L. Pepler, F.S.I. 6 p.m.

Monday, January 9.—Surveyors' Institution.—Meeting at 12 Great George Street, S.W. Paper by Mr. W. R. Davidge, F.S.I., F.R.I.B.A., entitled "Problems of Greater London." 8 p.m.

Tuesday, January 10—Liverpool Architectural Society.—Meeting at 13 Harrington Street. Paper by Mr. W. G. Newton, M.A., A.R.I.B.A. 6 p.m.

Wednesday, January 11.—St. Paul's Ecclesiological Society.—Meeting at 7 St. Andrew's Street, Holborn Circus, E.C. Paper by Mr. A. J. Mason entitled "Some Oxford and Cambridge Colleges." 8 p.m.

Thursday, January 12.—Society of Architects.—Annual General Meeting at 28 Bedford Square, W.C. Discussion on "The Architect and the State," to be opened by Sir Charles T. Ruthen, President, O.B.E., F.R.I.B.A. 8 p.m.

Friday, January 13.—London Society.—Meeting at the Royal Society of Arts, Adelphi, W.C. Paper by Lady Cooper entitled "The Banks of the Thames." 4.30 p.m.

The Ministry of Health have sanctioned a scheme of the Abergavenny Town Council for the erection of sixteen houses. The successful tender was that of the Building Guild, Ltd., Cardiff.

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London Art Galleries.

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The Burlington Fine Arts Club, in its winter exhibition, opened two days before Christmas, possesses an element of special interest in the fact that this exhibition comes entirely from one collection, and consists of paintings, drawings, majolica, illuminated missals and printed books, and the great coffers called "cassoni," lent by the courtesy of Sir George Holford from his collections at Westonbirt, Gloucestershire, and Dorchester House in London. This is, in fact, going back to the earlier traditions of the Club, which was founded in 1856 as a "Collector's Club," Mr. Holford, father of Sir George Holford, having been an original member. Other members were Mr. Gambier Parry, Sir Robert Peel, the Rothschilds, and Mr. Ruskin, the objects of the Club being defined as being "to hold receptions or 'conversazioni,' at which objects of art and virtú will be collected and exhibited." Among the early members, besides Ruskin, occur the names of the two Rossettis (W. M. and Dante Gabriel), of Seymour Haden, and J. McNeill Whistler; but this latter's presence did not seem to make for harmony, for Seymour Haden complained to the committee of having been assaulted by him "in a tavern in Paris," on which, after some discussion, Whistler's membership was cut short, whereupon W. M. Rossetti promptly resigned, and Dante Gabriel followed suit.

Mr. Holford's influence was entirely a good one. Born in 1808, he was a great builder, besides being a great collector. It has been said of him that "architecture came first with him . . . other arts and crafts were subsidiary, and contributed to the adornment and perfection of an interior as a whole." First, he created as a home for his art treasures Dorchester House in Park Lane; when this was completed, he planned with Vulliamy the rebuilding of Westonbirt in Gloucestershire. In art he preferred the maturity of every school to its spring-time, but he admitted the later Eclectics on their merits, and for Westonbirt acquired several Primitives. The result is seen in the paintings now being shown in the Club Gallery in Savile Row. One feels compelled to speak first of the Rembrandts: that of Titus van Rijn, son of the master's first wife Saskia, the beautiful youth dressed in black (black that is rich, warm, luminous in colour), with black "beretta" and long, curly, golden hair, is a portrait which, once seen, haunts the memory. Born in 1641, Titus died when he was only twenty-seven. Facing this is the Master's self-portrait, at the age of thirty-eight, signed "Rembrandt f. 1644," a wonderfully living likeness. The wife of Justice Lipsius, next this last, a charming old Dutch lady of fifty or more, was painted by Rembrandt in 1645, and came from the Fesch collection. Among the drawings here are two duplicates, in sanguine, crayon, bistre and wash, of a man's head and bust, signed "Rembrandt f. 1634." It needs a keen eye here to discern which is the original, and which the copy; but I believe I am right in selecting as the first that from the Aylesford collection—more fresh, more mobile, more pulsing with life.

But the Italians have by no means been neglected. Two exquisite Florentine works are a "Coronation of the Virgin," with the quality and finish of a missal, and a "Nativity": we are more discreet now in attributions, and this last, with elements recalling Ghirlandajo, Filippo Lippi, and even Filippino, is wisely left unnamed, as is the Peruginesque "Pietà" next to it. There follow some remarkable Italian portraits, that of a gentleman, by Bartolommeo Veneto, with wonderful eyes, full of earnest enquiry, and somewhat weak mouth, the exquisite bust portrait of a boy, a signed work by Giovanni Bellini, that of a girl, attributed to the Florentine Baldovinetti, with her golden hair drawn back from the forehead in the fashion of that time, and caught up in a net of pearls, and the half-length of a big fair man, north Italian in type, now attributed to the Bergamasque Cariani.

Lastly, I must spare a word for the delightful drawing in crayon and sanguine by Peter Paul Rubens of Helena Fourment, his beautiful second wife: he married her when he was fifty-two, and she still a girl of sixteen, and as such she appears here, in full face, with a quaint head-dress, a lovely child, with calm untroubled outlook and superb physical beauty. The illuminated missals, commencing with the superb ninth-century gospels in Latin, a rare and early book from the School of Rheims; and the early printed books, which include Boccaccio's "Philocolo" (1478) and Dante's great poem, with Landino's commentary (1481) are not to be overlooked.

The New English Art Club opened its sixty-fifth exhibition on December 24, and will remain open till January 28. Immediately on entering I was struck by the well-handled portrait of "Mrs. Edward Clark" by R. Schwabe, and, near this, by Lucien Pisarro's delightfully luminous "Mill, Blackpool Vale, Dartmouth." In his "Gypsies" A. N. Lewis with a low colour-scheme is true to type; and there is clever drawing in F. H. S. Shepherd's "Ariadne," marred, however, by clumsiness in the figure, the torso being, to my judgment, incorrect. On the next wall there are five water colours by the late A. W. Rich, whose loss is a serious one for our art in this medium: two of his best here are "St. Alban's Cathedral" and "Richmond Castle, Yorkshire," and near these there is good architectural drawing in C. Ginner's "Waterloo Bridge," and the clever pencil treatment of H. Rushbury's "St. Gervais, Paris." Among figure work Mr. Wilson Steer shows a somewhat fleshy presentment of "Bathsheba," J. Nash a group of "Bathers," and R. Schwabe and F. E. Jackson good drawings of the figure: but in composition and breadth of treatment the most interesting work of this class is Ethel Walker's "Invocation," where the groups of worshippers are finely balanced against a background of cliffs and sea. "Cassandra," by the late Havard Thomas, is a life-size nude figure in wood and wax, presenting the effect of bronze: there is good modelling here in detail, but the whole effect is not satisfactory, the hips seeming to be narrow for the breadth of shoulders, and the type not very pleasing. The twilight effect in A. Gwynne Jones's "Rebecca" is well treated; and attractive Italian subjects are Mr. Hutton's "Siena," with red-tiled roofs climbing up to that wonderful Duomo, and Mr. Collins Baker's "S. Vigilio."

I am informed to-day that in less than a month Gainsborough's famous "Blue Boy" will leave England for America. Meanwhile it has been lent by Sir Joseph Duveen to the National Gallery, where it will be on view for three weeks, from January 2 to January 24 inclusive. Since the picture came into Sir Joseph's hands it has been carefully cleaned, with the most brilliant result, giving the impression of what it was when first appearing. I have not the figures under my hand at this moment, but I know that the number and value of works of art leaving this country for America in the year now closing was very great: it is to be feared that when we come to realise that this land is being denuded of its art treasures, and take any steps in the most difficult problem of their protection, it may be already too late to shut the stable door.

Early in January will be held, for the first time in England, at the Leicester Galleries an exhibition of works by the French master, Degas. Edgar Degas was famous for his studies of dancers: born in 1834 he died in 1917, and his works, sold in Paris after his death, are stated to have realised over a quarter of a million pounds.

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Royal Institute of British Architects.

The following notes are from the Minutes of the Council meeting, December 19:—

Higher Buildings for London.—The Council of the Royal Institute of British Architects have discussed the report of a Committee which has suggested the modification of the London County Council's Regulations so as to permit the erection of higher buildings in London. After careful consideration of the whole subject the R.I.B.A. Council have arrived at the following conclusions:—

That any general increase in the height of buildings would be detrimental to the amenities of London.

That the powers possessed by the County Council of permitting an increase of height in particular cases are adequate, and are exercised in a reasonable way.

That the open spaces and wide streets of London are of great value in securing the free circulation of air, and that their usefulness in this respect should not be impaired by permitting the erection of high buildings adjoining them.

That the principle of increasing housing accommodation by means of high buildings is a reactionary one, and undesirable from the point of view of family life.

That in the case of buildings which, in order to secure unity of design, are required to be of the height allowed by the Building Act the restriction of the height of the top floor to 60 feet in those of large cubical contents is no longer necessary or desirable in view of the methods of construction and fire attack now available.

Street Architecture Award.—The following have been appointed to serve on the Jury which is to make the annual award for the best street frontage completed in London:—

Sir Aston Webb, President of the Royal Academy; Mr. Paul Waterhouse, President of the R.I.B.A.; Sir Reginald Blomfield, R.A., Past-President of the R.I.B.A.; Mr. E. Guy Dawber, Vice-President of the R.I.B.A.; the Rt. Hon. the Earl of Crawford and Balcarres, K.T., &c., Hon. Fellow of the R.I.B.A.

R.I.B.A. Conference, 1922.—The Council accepted the invitation of the South Wales Institute of Architects to hold the R.I.B.A. Conference in Cardiff in the summer of 1922.

The University of London.—Mr. Paul Waterhouse and Mr. Arthur Keen were appointed to represent the Royal Institute on the Architectural Education Committee of the University of London.

Financial Support to Scientific Organisations.—The Council voted subscriptions to the funds of the Empire Forestry Association and the British Engineering Standards Association.

The Tottenham War Memorial Competition.—The Council endorsed the issue of the veto in regard to this Competition.

"The Designers of our Buildings."—A vote of thanks was passed in favour of Mr. L. Cope Cornford, the author of the recently published volume on the Royal Institute and its activities.

Loan of Drawings.—Votes of thanks were passed in favour of Sir Vere Isham and Mrs. Coke for the loan of the John Webb Collection and the Smithson Collection to the Royal Institute Library.

The Exhibition of American Architecture.—Votes of thanks were passed in favour of the American Institute of Architects for the loan of the drawings and photographs, to the Exhibition Committee for their organising work, to the Hanging Sub-Committee (Messrs. W. H. Ward, H. M. Fletcher, and H. C. Bradshaw) for the effective arrangement of the exhibits, to Mr. H. C. Bradshaw for the design of the poster, and to Mr. Cart de Lafontaine for writing the Foreword to the catalogue and for his services in negotiating the loan of the Exhibition.

Final and Special War Examinations.

The Board of Architectural Education announce that the designs submitted by the following students who are qualifying for the final and special war examinations have been approved:—

Subject LIX.—(*a*) *Design for a City Square with Colonnade.*—Clark, R. J. B.; King, W.; Reid, A. S.; Jenson, A. G.; Knewstubb, F. W.; Ryle, W. (Miss); Sugden, H. D.

Designs for various other subjects submitted by the following students have also been approved:—

Burge, B.; Dent, A. R.; Reid, A. S.; Conlan, J. N. P.; Hutton, C. H.; Shroff, L. F.

A Pre-Raphaelite Exhibition.

There are comparatively few people now living who can still recall the first little group of artists calling themselves the Pre-Raphaelite Brotherhood who lived and worked so earnestly and thoughtfully together about half a century ago. To those who can do so, the Exhibition of Works by the late R. B. Martineau (friend and pupil of W. Holman Hunt) which is to be held early in the New Year, will be of double interest.

He was an artist of great promise, whose early death was regretted by all who knew him. Very few of his pictures, with the exception of "The Last Day in the Old Home," now in the Tate Gallery, are known to the general public of picture lovers, but the favour which this picture has always found leads one to hope that other work by this almost forgotten artist may be appreciated by those who visit the little memorial Exhibition which is to be held at the Brook Street Art Gallery, 14 Brook Street, New Bond Street, W., from January 10 to 23.

Competition News.

The Hull Corporation Property Committee are about to organise a competition for a proposed art gallery. Before the war the Rt. Hon. T. R. Ferens purchased St. John's Church, on the south side of the City Square, and presented it to the Corporation as the site for an art gallery, and promised £40,000 towards the cost of the building.

Mr. John Greaves, architect, has been awarded the first prize of £500 offered by the Bengal Government for a design of the proposed legislative building. Messrs. Maffey & Morgan and Messrs. Armstrong & Dawson, joint architects, London, were second, and gained an award of £250; the third award, value £100, has been secured by Messrs. Forbes & Tate, London. Mr. H. A. Crouch, consulting architect to the Government of Bengal, was the adjudicator. Mr. Greaves, who is in India, designed the Calcutta Cenotaph.

The Competitions Committee of the R.I.B.A. desire to call the attention of Members and Licentiates to the fact that the conditions of the Malvern Public Baths Competition and Truro War Memorial Competition are unsatisfactory. The Competitions Committee are in negotiation with the promoters in the hope of securing an amendment. In the meantime Members and Licentiates are advised to take no part in these competitions. A similar warning has been issued to members of the Society of Architects.

The City of Dundee War Memorial Committee invite designs for a memorial. The total cost, inclusive of excavations and foundations and making good the ground, but exclusive of architects' fees and expenses incidental to the competition, must not exceed £12,500. Premiums of £250, £150, and £100 are offered. In the event of the design of the successful competitor being carried out the first premium will be merged in his commission of 6 per cent. on the cost of the work. Plans and photo of the site, with particulars and conditions of the competition, can be obtained from Mr. W. H. Blyth Martin, Town Clerk, on the payment of a deposit of £2 2s.

About two hundred designs by artists and architects have been received in connection with Paisley war memorial, which is to be erected on a site at the Cross. The period within which designs could be lodged expired last week. The adjudicators, Sir Reginald Blomfield, R.A., and Mr. D. Y. Cameron, R.A., assisted by a representative of the committee, will examine the designs on January 13 and 14, and make a report to the committee. The three leading competitors will respectively be entitled to premiums of £250, £200, and £150. From January 14 to January 16 the designs will be on exhibition in the Art Galleries. The sum of £14,000 has been subscribed, and £11,000 will be available for expenditure on the monument.

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The Design of Chemistry Laboratory Fittings.

By Alan E. Munby, M.A., F.R.I.B.A.

The writer has been asked to deal with the subject of laboratory fittings for this issue which contains so carefully prepared and interesting a set of drawings as those of Dublin University College. Probably most of us are prepared to endorse the view that science is of great importance to the nation, and that we are much behind in this country in the provision for its material requirements. The war left us in a state of enthusiasm for science, but there have been other times promising activity in this direction which have had disappointing results, for example, the Great Exhibition of 1851 and the time of the Technical Instruction Acts of 1889. Amid the popular cry for economy there is considerable danger that our enthusiasm will die down owing to our lack of discrimination between refusing to spend and the wise expenditure of money, and until the public generally can be brought to appreciate science, and the demand can be voiced politically, we shall never catch up our foreign competitors. This result can only be attained by education, and this education involves material necessities in the matter of laboratories on a sufficiently extensive scale to give everyone who can profit by them an opportunity not of becoming necessarily a scientist, but of learning the principles of science for general application to the affairs of life.

The fittings of laboratories differ from the fittings of most buildings in that they involve definite relations to the design of the building erected for their reception. The term laboratory furniture often used is hardly appropriate for most fittings, and has given rise to the impression that success can be attained by designing and erecting a building, and afterwards furnishing it with the required benches and services for work. Success on these lines is impossible, and this method leads to all kinds of unfortunate compromises, disfigurements, and inconveniences, not to speak of expense. Why it occurs it is hard to say, unless it be that men of science requiring laboratories do not associate powers of architectural design with aptitude for control of the main essential of the laboratory, its fittings and services.

There is real economy as well as increased efficiency in the complete design of the fittings alongside the architect's working drawings. Not only is provision then made in the construction for the often complex services necessary, but the benefits of competition can be attained in inviting tenders for these fittings on a fair and definite basis.

But to come to grips with the subject, let us deal with chemical laboratories as usually the most complex in their requirements; "usually," because it is quite possible to find laboratories for advanced work in other subjects more intricate than elementary chemical laboratories. One must first appreciate the distinction between elementary and advanced requirements for research. In the last case, for example, there will be few fixed fittings, and such as these are will probably be placed against the walls leaving the centre of the room unencumbered, while a room for elementary work will have fixed cross benches. Before any fittings can be designed they must of course be laid out on the plans, and in the more important rooms it is hardly too much to say that the plan of the room should be laid out round them. We cannot here deal with planning, itself of course a large subject, including the relations and positions of different rooms, which must naturally be decided upon before the fittings individually are taken in hand. The spacing of the fittings controlling width of gangways and the location of certain fixtures in common use must necessarily control the form of the fittings themselves.

An elementary chemical laboratory will contain students' working benches, fume cupboards, wall shelves, a blowpipe table, one or more general side benches, possibly a large washing-up sink, blackboards, and generally, though not necessarily, a demonstrator's table on a platform. For the details of general working benches the reader has only to refer to the drawings of the Dublin University College given in this issue. The most economical bench is the double form for students on both sides with sinks and services in common. These benches are usually three feet high to the top of the working place, but for juniors may be an inch or two less. The bench length for elementary work is 3 ft. 6 in., and the width something between 2 ft. 3 in. and 2 ft. 9 in., giving a double bench between 4 ft. 6 in. and 5 ft. 6 in. in total width. Sometimes the tops overhang the framing below as in the Dublin illustrations, which of course decreases the depth of the lockers provided. If these are not recessed toe space should be arranged by setting back the framing below the bottom of the lockers. In the illustrations referred to, a single locker with a pair of doors is shown under each working place, but more may be wanted, and it is quite practicable to provide three lockers, which, though only 11 in. wide, are big enough for elementary needs. What is wanted depends upon the teaching, and must be ascertained. Sometimes lockers are omitted, and perhaps drawers also, which much decreases the cost of these fittings. As to materials used in bench construction the framing is perhaps usually pitchpine, but yellow deal or basswood is quite satisfactory. The bench top has to resist severe treatment, much radiation from hot vessels, constant wet, and the corrosive action of acids and alkalis. For this some hard oily wood such as teak is generally employed, and this should be about 1¼ in. thick. Occasionally mahogany, as being less liable to open at joints or to warp, is used, but there seems no reason why when economy is necessary soft woods should not be previously impregnated with resistant materials, and used in place of these costly hard woods. The writer takes the opportunity of thanking the Council of the Chemical Society for taking up this and kindred matters in connection with economy in laboratory equipment at his suggestion, and preparing a very valuable report on the subject. In some recent examples semi-glazed red tiles on concrete have been employed, and are considered satisfactory. There are other hopeful possibilities about which lack of space precludes discussion. The writer's view is that the fewer bottle shelves on working benches the better. For much work these shelves are unnecessary, they hinder vision, and their absence has a wonderful effect in lightening the design of the room. These shelves may be wood or glass. Occasionally, as in one or two examples abroad, they are glass with painted iron standards.

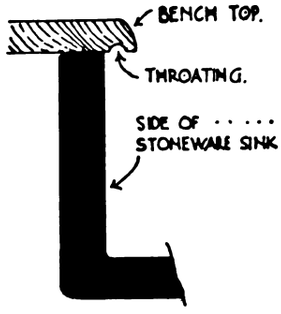


Fig. 1.—Section showing Bench Top over-running Sink.

Sinks and their drainage require consideration. Undoubtedly the best sinks are those of glazed fireclay devoid of all metal work such as waste grids and chains. Though often fixed flush with the bench tops as apparently in the Dublin fittings, they are best placed with the bench running over them and throated to form a drip as shown in section Fig. 1.* This method of fixing does away with an exposed joint between the bench top and the sink, and enables spilt liquids to be swept directly into the sinks. The outlets to these sinks should be glazed ware, and have either lead or earthenware untrapped wastes discharging into open drains.

The method of locking drawers and cupboards will depend upon the status of the students. While adults

* The writer wishes to acknowledge his indebtedness to Messrs. George Bell, publishers of his book "Laboratories," who have kindly loaned the blocks from this book for all the illustrations in this article.

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may have ordinary locks and keys, it is better to have for juniors good spring locks for the cupboards, controlled by a common key retained by the laboratory assistant. In this case the drawers may be conveniently controlled from inside the lockers by means of an oak spring which, fixed to the underside of the drawer, prevents it from opening by catching against the front rail of the framing unless pushed up by his hand. By this method the lockers of the class beginning work can be rapidly opened and drawers and lockers closed at once by mere shutting. Fig. 2 shows the spring alluded to.

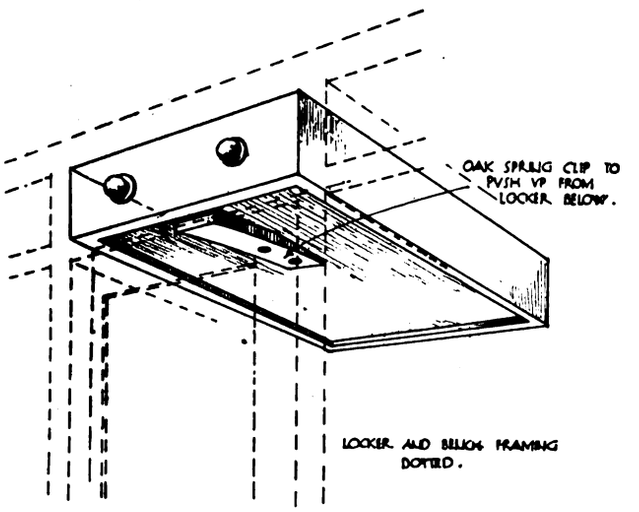


Fig. 2.—Drawer on under side of bottom, showing Spring Clip.

When benches serve only four students the sinks are best placed as independent additions at the bench ends which avoids drains inside the bench, but, as each worker must have a sink directly accessible, this desirable scheme is not practicable for long benches often necessary to economise space. Sinks are not employed universally. Fig. 3 shows an elevation and section of a bench recently designed for a State school in California. Here a trough of soapstone 9 in. wide and 5 to 8 in. deep is used in a bench 14 ft. long. The water supply is placed above it, and it discharges into a sink at the bench end.

Fume cupboards are necessary for work involving noxious gases. They are generally composed of glazed sides with sloping tops and sliding sash fronts. Best placed in the windows, this position is only usually satisfactory if the room is lofty enough to admit of some clear window (above a transom) over the cupboard roofs. As the sash should throw up 2 ft. 6 in., both to give room for tall apparatus and avoid risk of cracking the glass in the roof by gas flames, it will be seen that many such cupboards in the windows of a low room will prove very disastrous to the lighting. Usually about 2 ft. deep and 3 to 6 ft. long, the bottoms of these cupboards are best tiled. Slate, formerly much used, is apt to crack while lead warps and gets very dirty. Where economy must be studied fine concrete finished in granolithic cement and painted with aniline black forms a satisfactory base, and plugs can readily be left in it for holes for gas and other supplies. The framing is generally of wood, but occasionally of painted iron. An interesting attempt to reduce this framing to a minimum and by the use of plate-glass to produce an almost glass-to-glass cupboard is to be seen in the new laboratories of the Institute of Chemistry. Fig. 4 shows detailed drawings of the Fume Cupboards at the Institute of Chemistry, Berlin, and is taken from a German monograph upon this well-known laboratory. For elementary work the complex services shown are not required. The use of ordinary sash weights involves rather cumbrous boxing, and a single central cord exposed and run over a pulley supported by the wall behind is on the whole better. Such a cord must be strong and of the best and the pulley large, which will prolong its life, much increased also by vaseline well rubbed in at intervals. Flexible wire rope is, however, generally employed. Given efficient draught these sashes need never close completely at the bottom, and projecting rubber buffers in the bottom rail of the sash are a safeguard in the event of a cord breaking, while the space between sash and cupboard base helps the general ventilation of the laboratory. Ventilation is a big subject, too big for such an article as this. Electric fans attached to a graded system of trunking are most common in modern laboratories for removing fumes from these cupboards, but flues actuated by gas are common, and have advantages for isolated use and small schemes. The termination of these flues both in the cupboards and to the external air require proper designing.

Leaving other elementary chemical laboratory fittings as being less complex in character, the lecture room next claims attention. This may be anything between a simple classroom with a demonstration bench and an elaborate theatre for a large audience. Raised seating is most desirable, but need not be of the great height often found in institutions. The tiers should be set out on what is called an isocoustic curve.* Behind the lecture table will be blackboards, a fume cupboard connected with the preparation room, and wall shelves.

The lecture table, usually three feet high and about the same width, may be anything from, say, twelve feet long to the whole width of the room. The remarks about students' bench tops apply to this table though it is in better hands. Some small area of incombustible material, however, is desirable for furnaces and small hot vessels. This may be a few square feet in area and of fine sandstone, tiles, or cement. Drawers and cupboards on the lecturer's side are required in some profusion, and these should be designed for specific uses such as lantern slides, microscope slides, valuables such as platinum, for drawers, and one cupboard should hold the lantern and its adjuncts. A useful device for electric cables under the table top on the students' side is shown in section in Fig. 5. Where this is

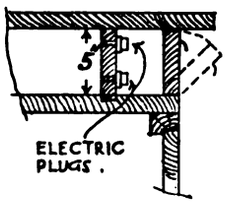


Fig. 5.—Section showing Run for Electric Wiring to Lecture Table, University College Chemical Theatre, London.

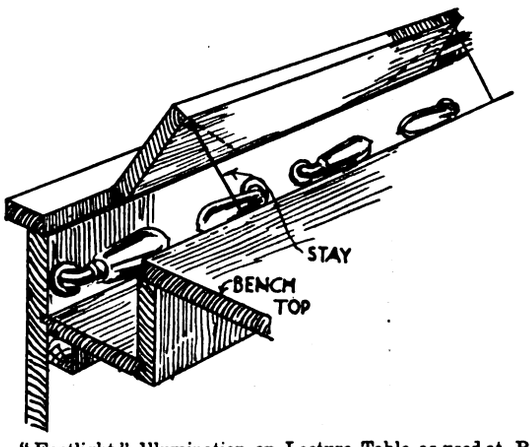


Fig. 6.—"Footlight" Illumination on Lecture Table as used at Bristol University.

not adopted its place may be taken by the "footlight" arrangement for illuminating apparatus as used at Bristol University (Fig. 6). The supplies to lecture-tables are often elaborate, though usually two sinks placed one at each end are sufficient. Gas, water, exhaust vents, electric supplies, direct and alternating, of various voltages, and sometimes an exhaust service are called for. Fig. 7 shows a section through a table exhaust vent pipe for discharging fumes, while Fig. 8 shows a useful device for protecting gas or water supplies on the lecturer's side. As the full width of the

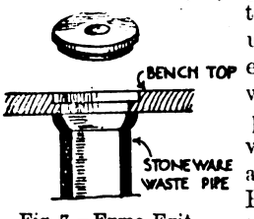


Fig. 7.—Fume Exit Lecture Table Top.

* This will be found fully explained in Messrs. Bell's publication previously alluded to.

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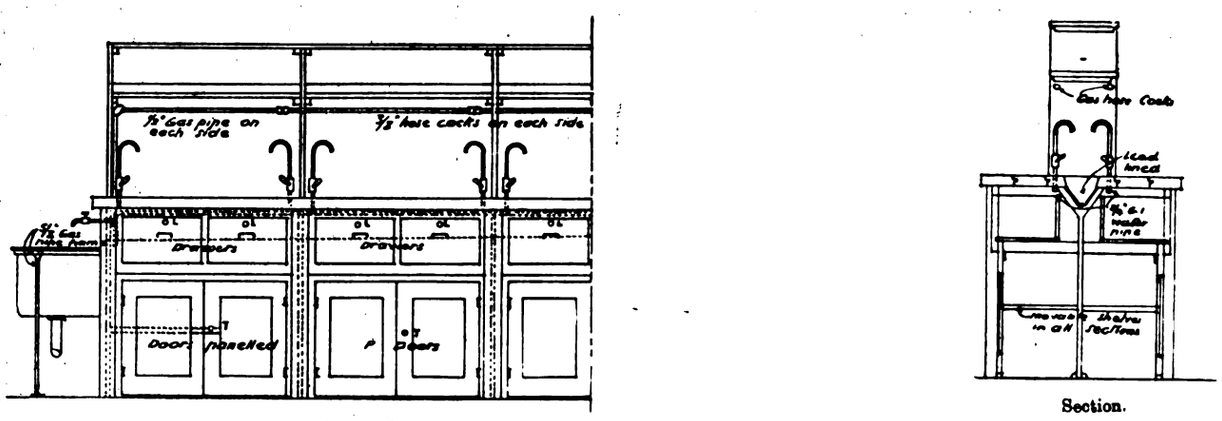


Fig. 3.—Chemical Bench used in the State Normal School, Los Angeles.

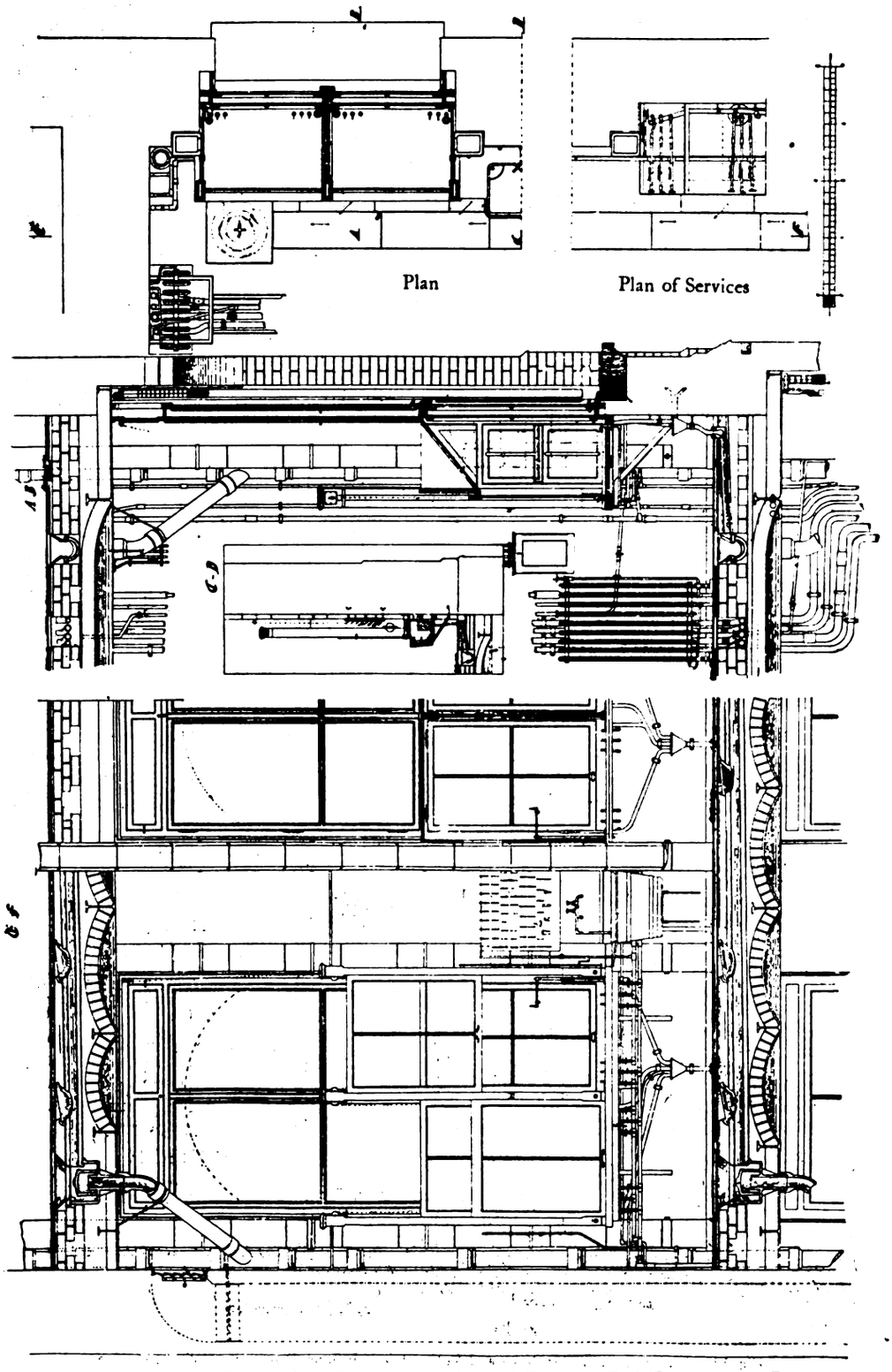


Fig. 4.—Fume Cupboards. Institute of Chemistry, Berlin.

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table is not required for drawers and cupboards, the students' side may be utilised in part for shallow specimen cupboards with glazed doors, and in school

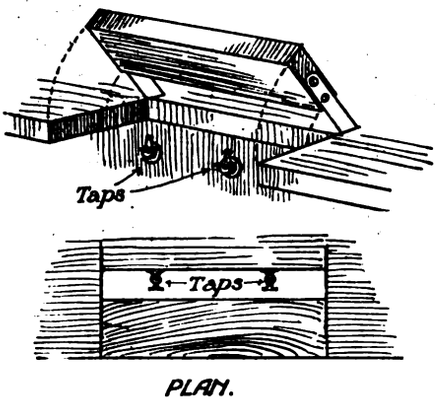


Fig. 8.—Hinged flap to Lecture Table Top over Supplies.

work for the storage of note-books handed in periodically for correction. Fig. 9 shows an example of a table containing such arrangements. The optical lantern plays an important rôle in the lecture-room. For constant use with the services of an operator it is best placed well up in or behind the audience with the "sheet," which should be a distempered wall or rigid opaque surface of some kind, centrally behind the lecturer. For occasional use by the lecturer the lantern is best placed on a movable stand near or actually on the lecture table. This requires a screen (usually smaller) in one corner of the room. Fig. 10 shows a lantern table made by an American firm.

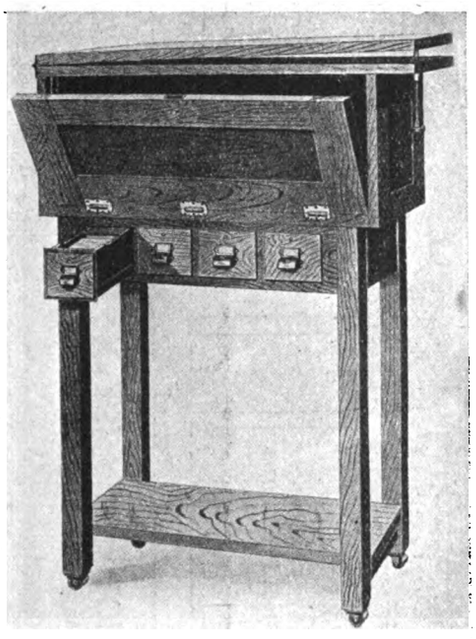


Fig. 10.—Lantern Table by Kewaunee Co.

Turning finally to some of the subsidiary rooms in a chemical department, the Balance room is generally placed so as to be available directly from both elementary and advanced laboratories in a small scheme. It should not be used for anything but weighing, and must be dry and well lighted. The balance shelves may be slate or wood, and are usually fixed to stout brackets. Occasionally movable shelves are called for. Fig. 11 shows an ingenious arrangement for combining rigidity with mobility, bracket tables with feet butting against the walls and secured by an iron rail at the top. Preparation rooms often require some fittings needing special design, and though a good sink and plenty of bench and cupboard space may serve in many instances, where these rooms act as a dispensary more elaborate arrangements for serving out and checking apparatus may be requisite. Fig. 12 shows the kind of stand often employed for holding solutions of standard strength, much used in volumetric analysis, with drains to catch the drippings from the bottles supplied with glass taps.

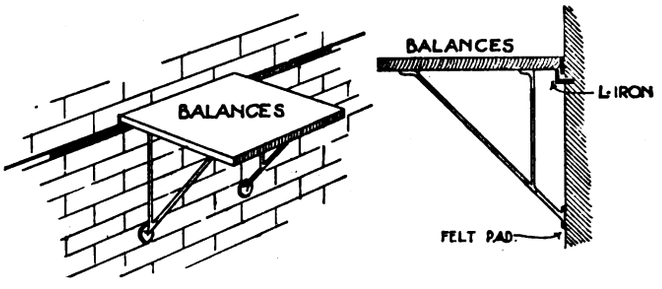


Fig. 11.—Movable Balance Shelves.

Combustion rooms associated only with large schemes are required for lengthy analytical operations involving furnaces operated by gas. They are usually small rooms with stone or cement-faced concrete benches on brick piers, over which hoods (usually in modern laboratories made of iron and asbestic sheeting) are required with ventilation flues to remove combustion products and hot gases. A sink is generally necessary with water supply. Proximity to a Balance room is desirable. Of a rather different order but requiring equal freedom from combustible materials is a room required for heat treatment. Here furnaces of a different type are employed which will enable high temperatures to be obtained. This necessitates an ample gas supply involving large pipes.

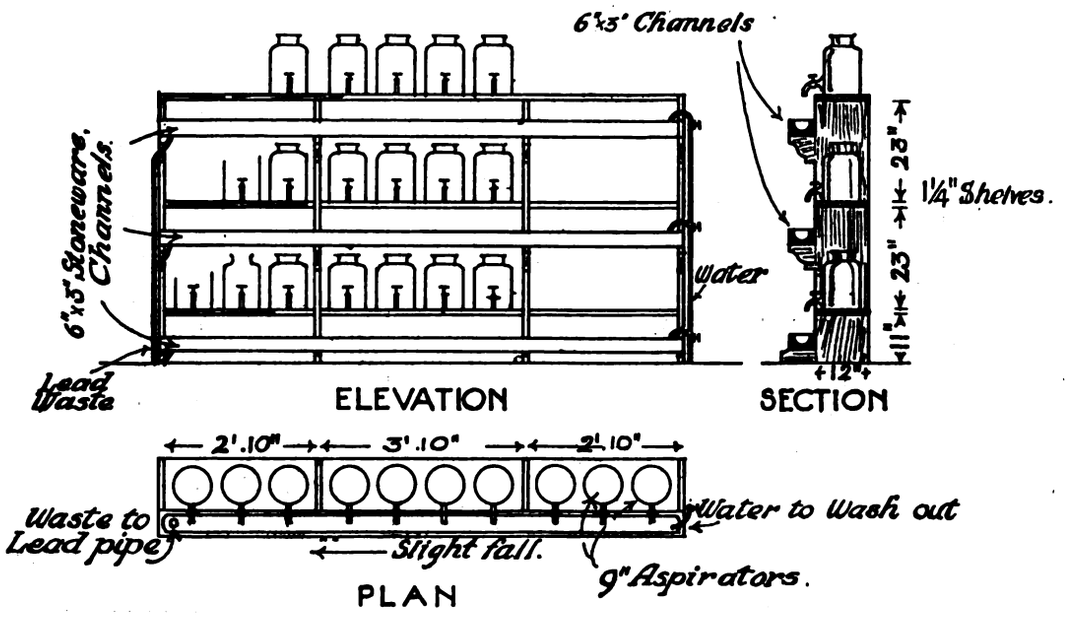


Fig. 12.—Aspirator Stand for Stock and Volumetric Solutions, University College, London.

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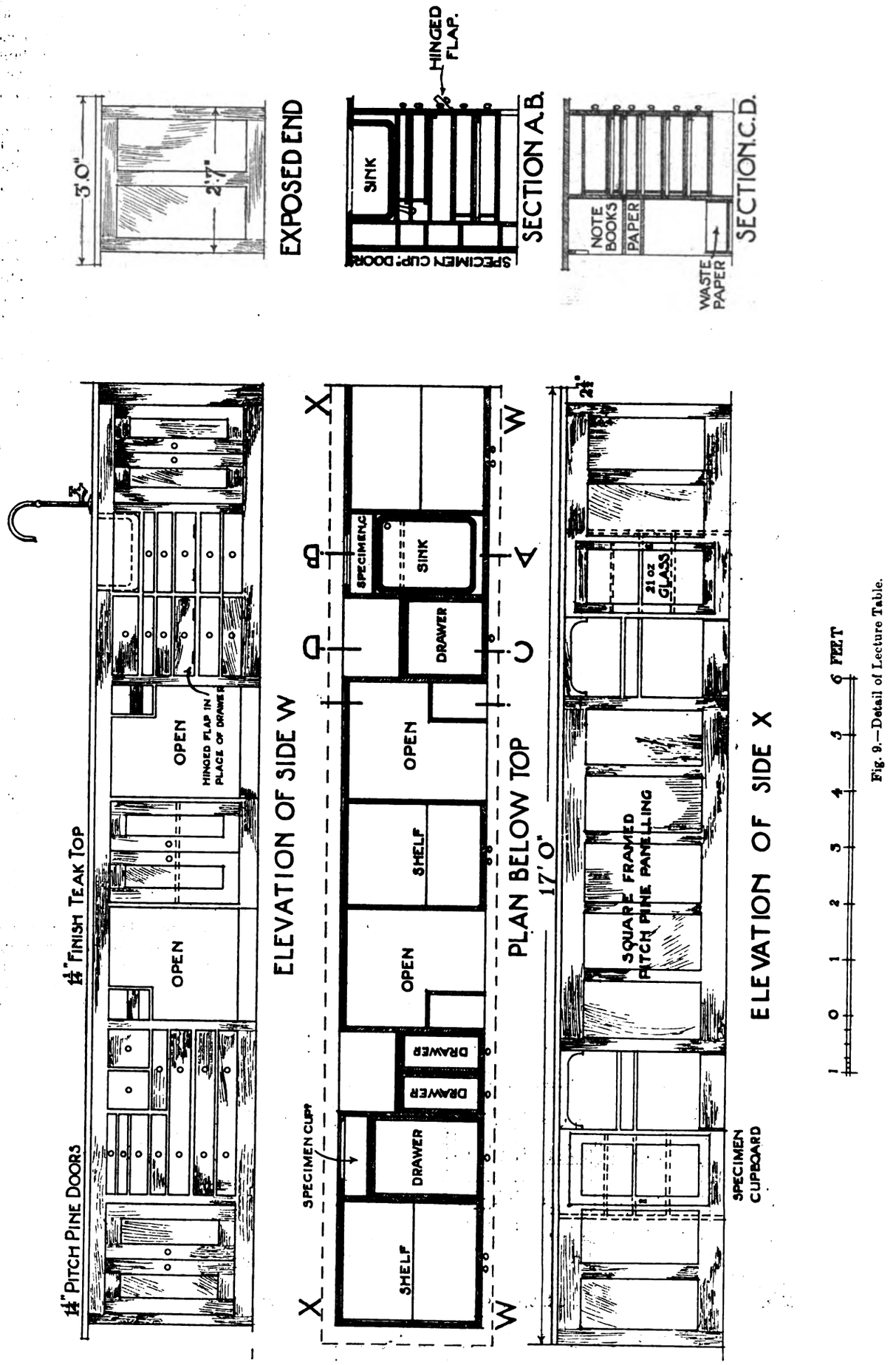


Fig. 9.—Detail of Lecture Table.

Unless there is a separate metallurgical department metallurgy will find a place in this room. This branch of chemistry often requires built firebrick furnaces and a special chimney shaft to produce the necessary draught.

Store rooms of very ample capacity are often required for chemical stock to admit of purchase in quantity. A great deal of delicate glass—some vessels of considerable size—is usually stored in open bins or large cupboards with sliding doors. Chemicals in jars and bottles require shelves, some of which have to sustain considerable weight. The floor of such a room is preferably asphalte, but, where a separate room can be provided for acids and

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DRAWING Nº (13)

PHYSICS DEPARTMENT

DETAIL OF BENCHES TO BE FITTED IN PHYSICS LAB. 1ST FLOOR
ALSO LECTURE TABLE IN SMALL LECTURE ROOM. GROUND FLOOR

SCALE OF FEET

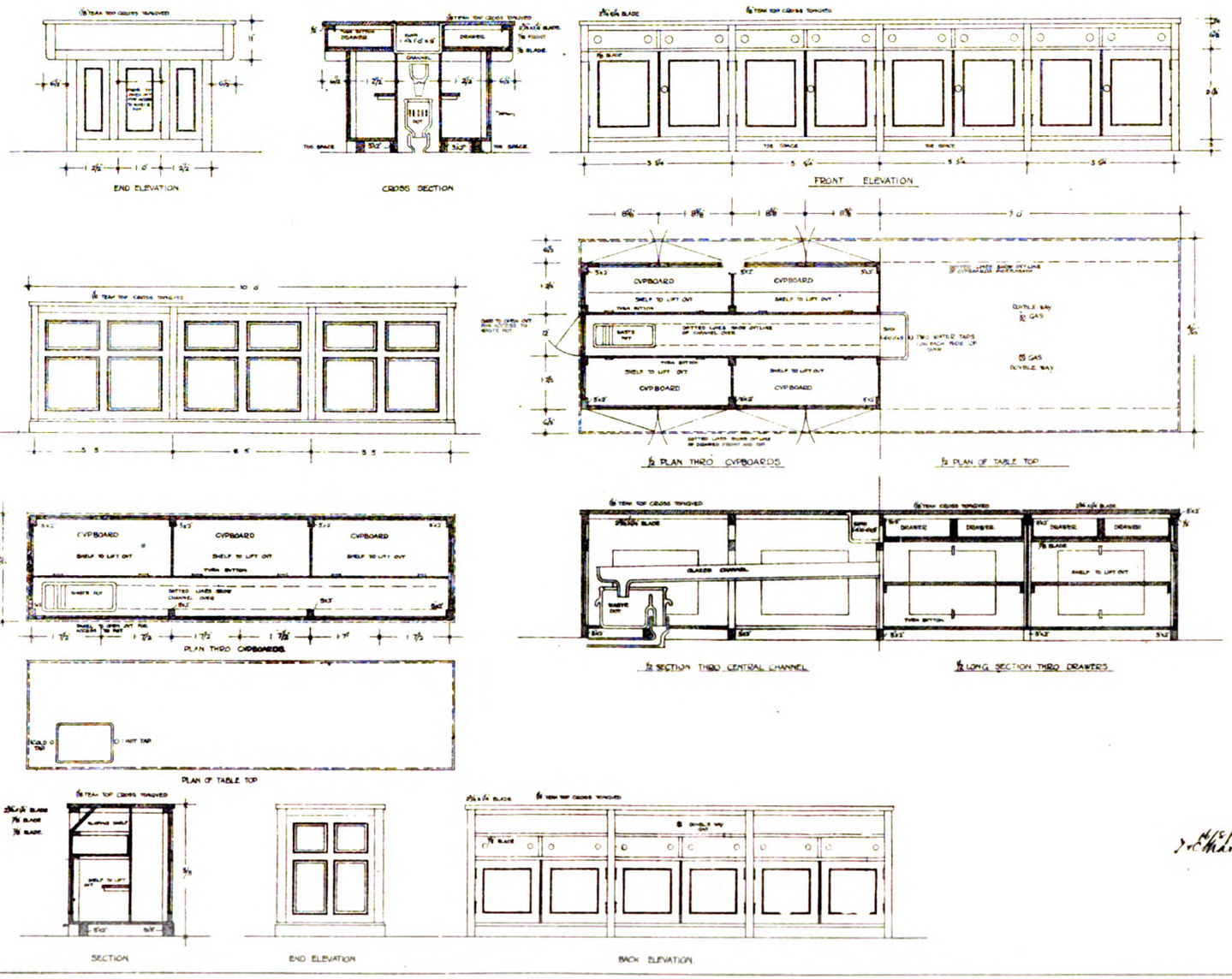


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R. M. BUTLER, ARCHITECT.

THE ARCHITECT, JANUARY 6th, 1922.

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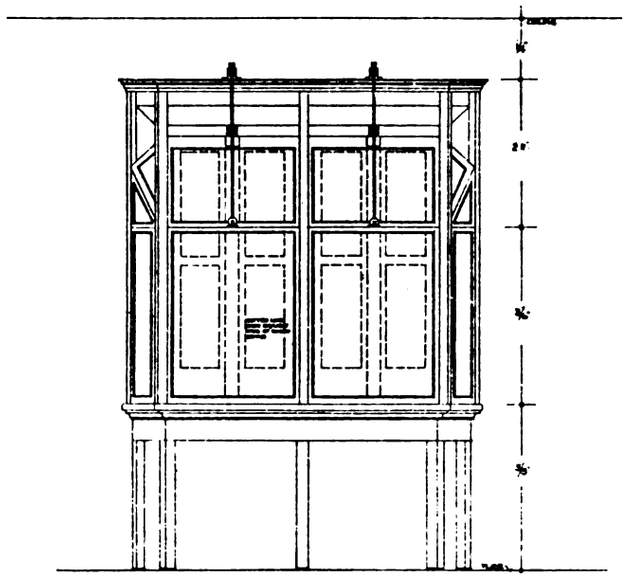
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CHEMISTRY DEPARTMENT.

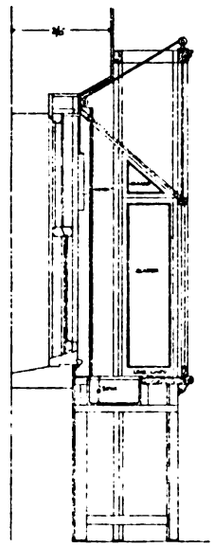
DETAIL OF FUME CUPBOARDS TO BE FITTED
IN CHEMICAL LABORATORY 2ND FLOOR.

SCALE OF 0 1 2 3 4 5 6 7 8 9 10 FEET.
SCALE ONE INCH TO ONE FOOT.

DRAWING No (4)

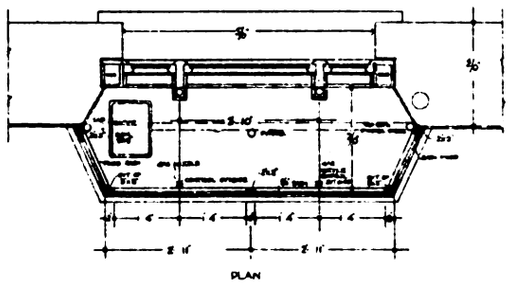


FRONT ELEVATION.



SECTION

FUME CUPBOARDS



PLAN

Engineer to the Board
J. C. Chambers Esq.

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CHEMISTRY DEPARTMENT.

DETAIL OF BENCHES TO BE FITTED IN INORGANIC LAB
1ST FLOOR & PHYSICS & CHEMICAL LAB 2ND FLOOR.

DRAWING No. (1)

SCALE OF 12 9 6 3 0 1 2 3 4 5 6 7 8 9 10 11 FEET.

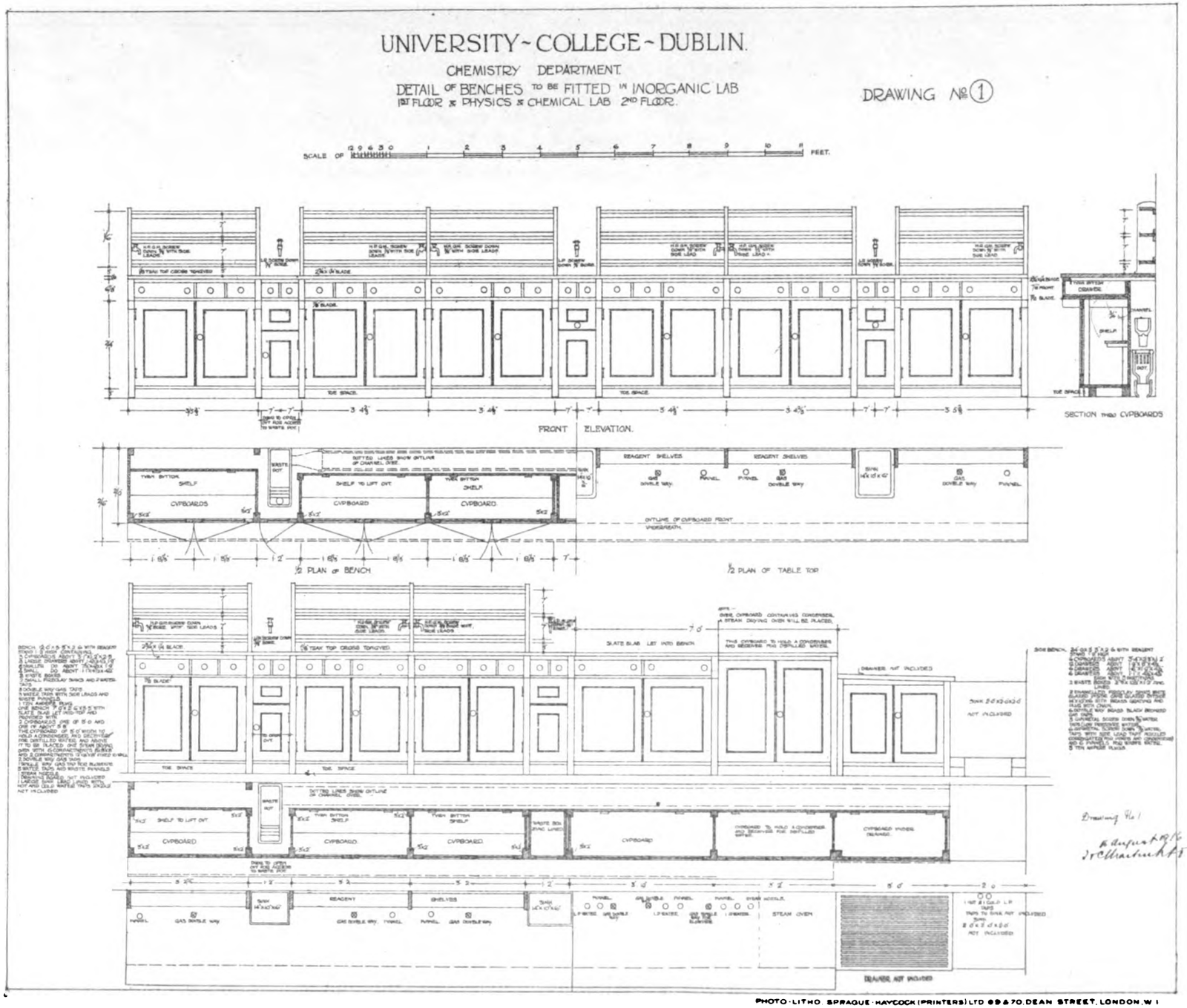


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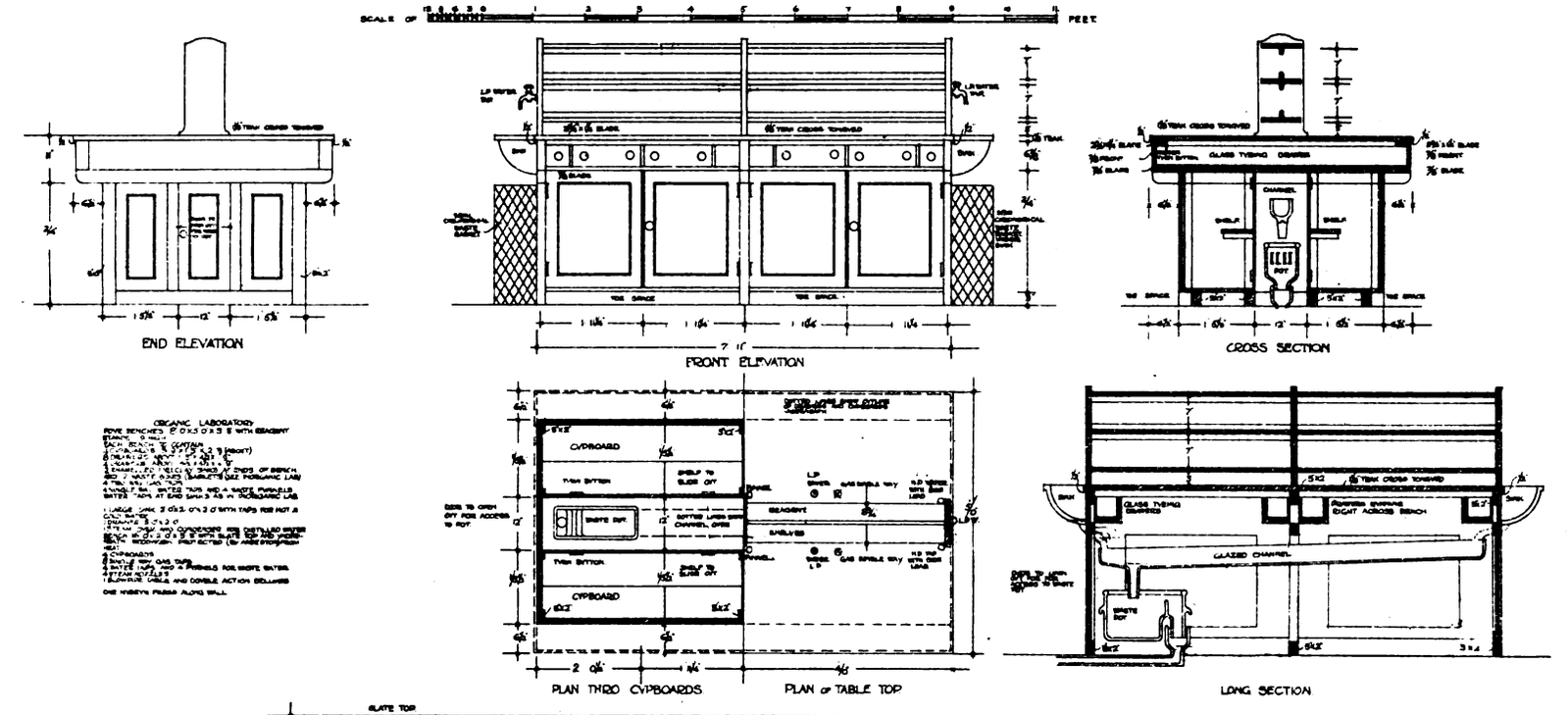
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CHEMISTRY DEPARTMENT

DETAIL OF BENCHES TO BE FITTED IN ORGANIC LABORATORY 1st FLOOR

DRAWING Nº (3)



Drawing No 3
Augustus Pugin
H. Chatwin del

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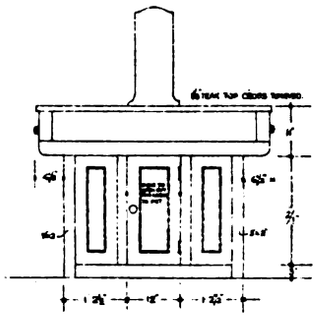
DETAIL OF BENCHES TO BE FITTED IN CHEMICAL LABORATORY 2ND FLOOR. (ELEMENTARY)

13 BENCHES REQUIRED.

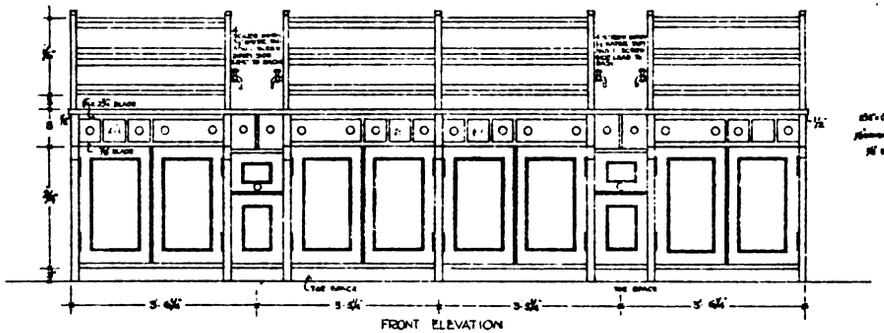
DRAWING Nº (5)

SCALE OF FEET

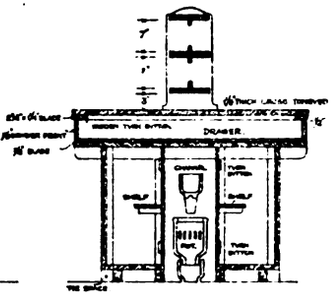
SCALE ONE INCH TO ONE FOOT.



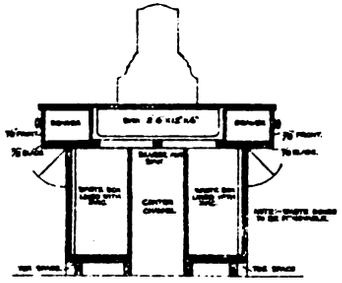
END ELEVATION

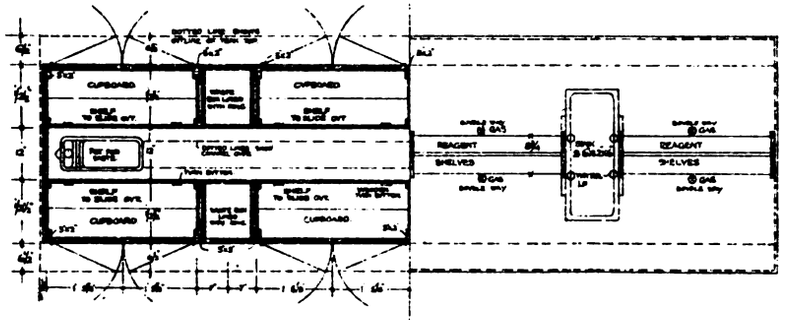


FRONT ELEVATION



SECTION THRO LONG DRAWER A—A.





6 CUPBOARDS	
4 WASTE BOXES	
5 DRAWERS	
9 DRAWERS	ABOVE
2 DRAWERS	ABOVE
5 DRAWERS	ABOVE
TEAK TOP	
BENCH SINKS	
WATER TAPS	
GAS TAPS	

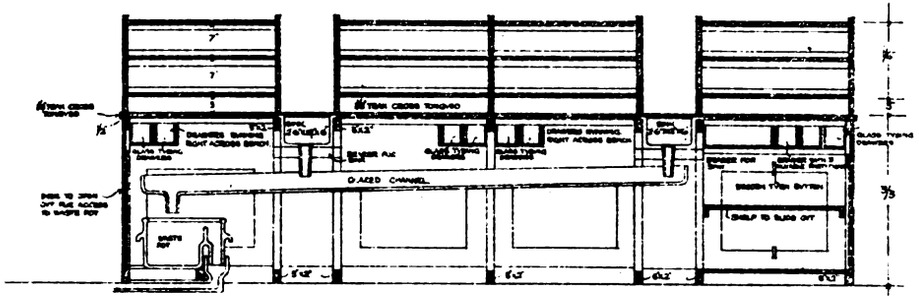


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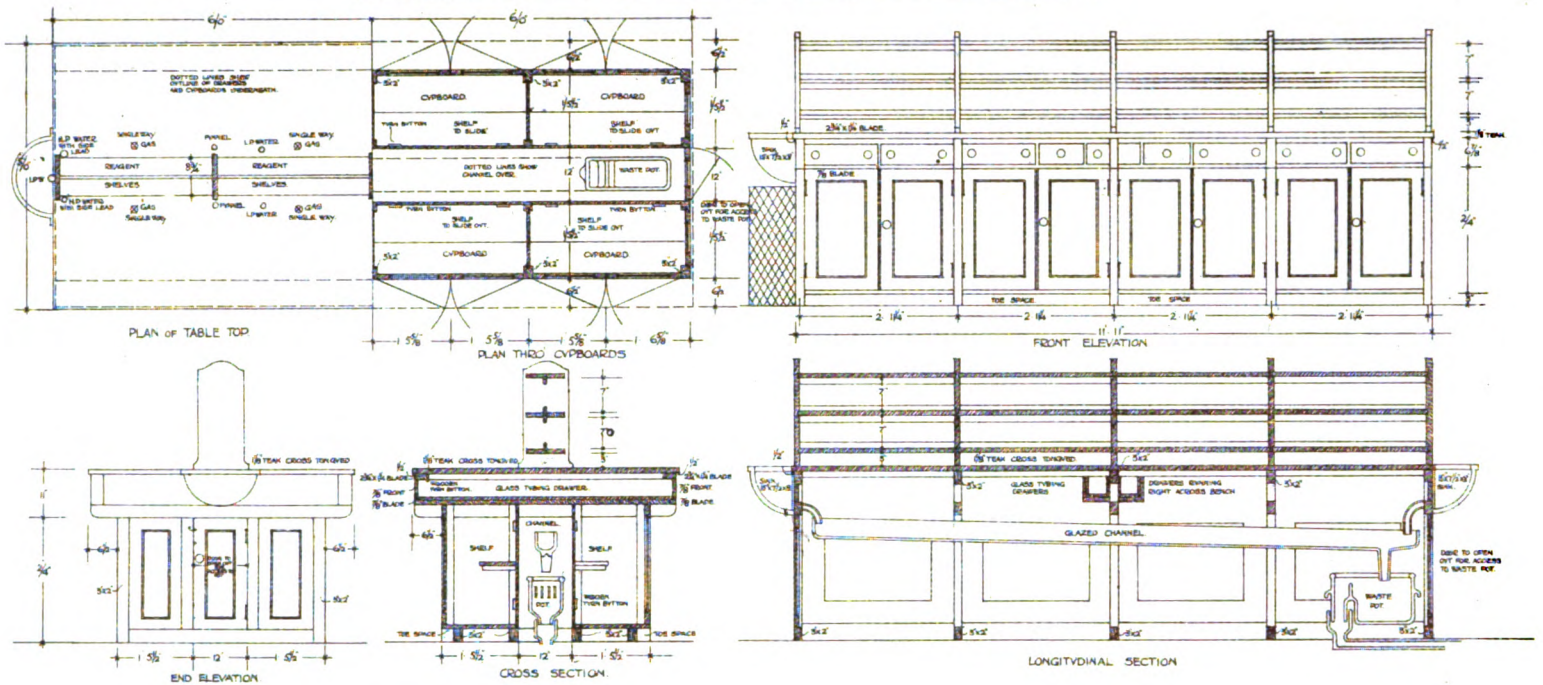
CHEMISTRY DEPARTMENT.

DETAIL OF BENCHES TO BE FITTED IN PHYSICO-CHEMICAL LAB 2ND FLOOR PROFESSORS RESEARCH 1ST FLOOR INORGANIC LABORATORY 1ST FLOOR

DRAWING Nº (2)

Nº REQUIRED	LABORATORY	FLOOR.
1	PHYSICS AND CHEMICAL LAB	2ND FLOOR.
1	PROFESSORS RESEARCH LAB.	1ST FLOOR.
1	INORGANIC LABORATORY	1ST FLOOR.

SCALE OF FEET



CENTRAL BENCH 12'x5'x 3'5" WITH REAGENT STAND 1'9" HIGH

8 CUPBOARDS
12 DRAWERS
4 DRAWERS
2 DRAWERS
3 SINKS

August 8th 1921
J. C. Mackenzie & Co

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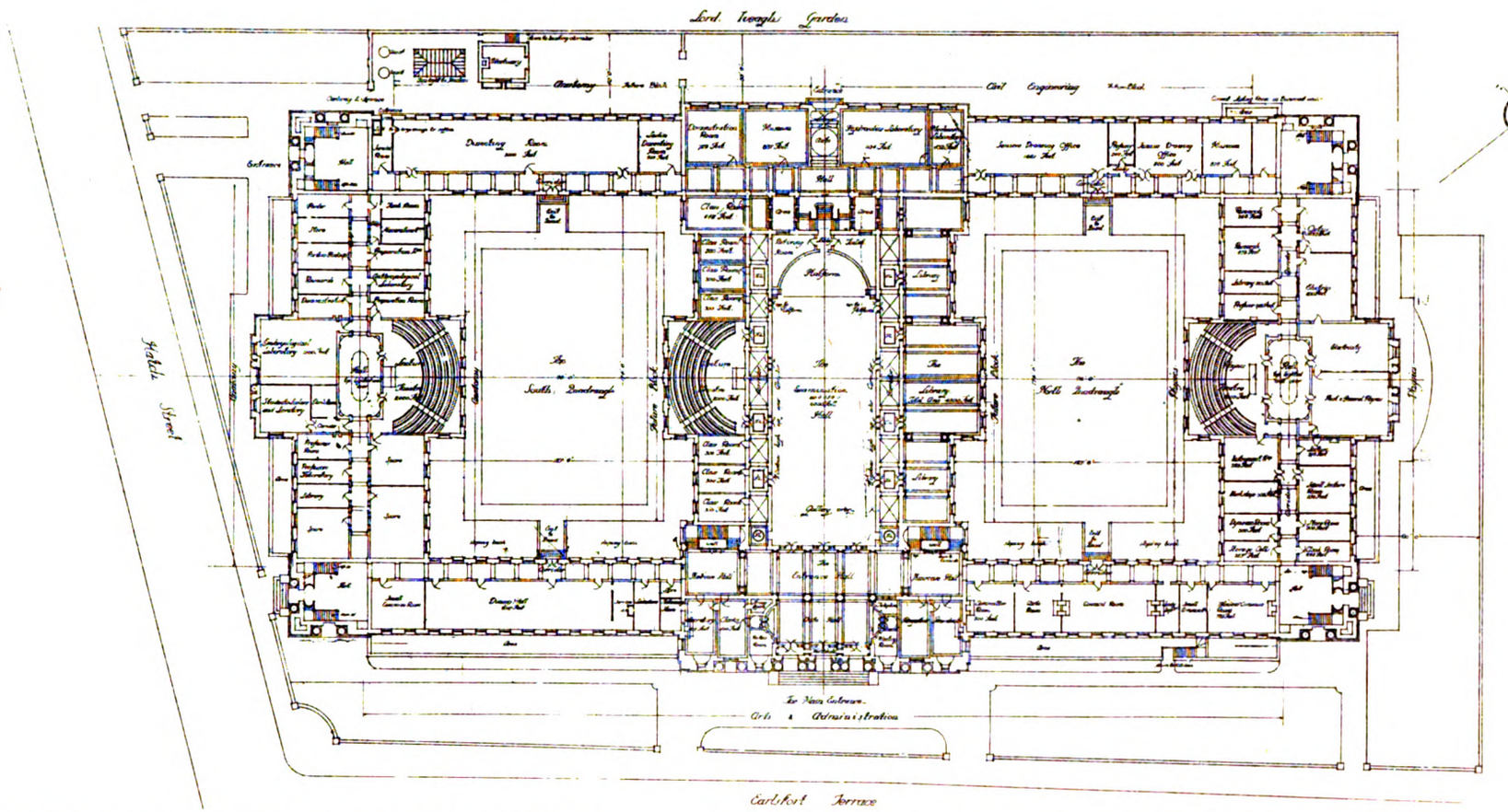
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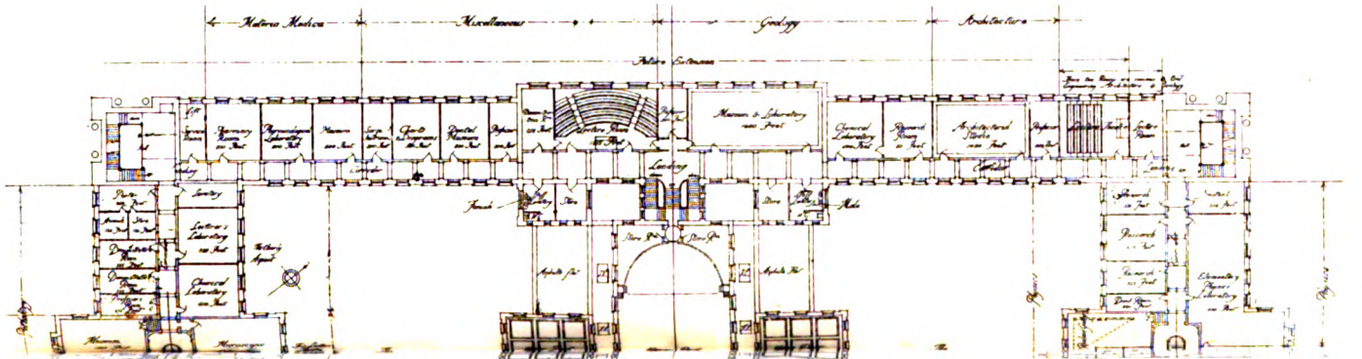
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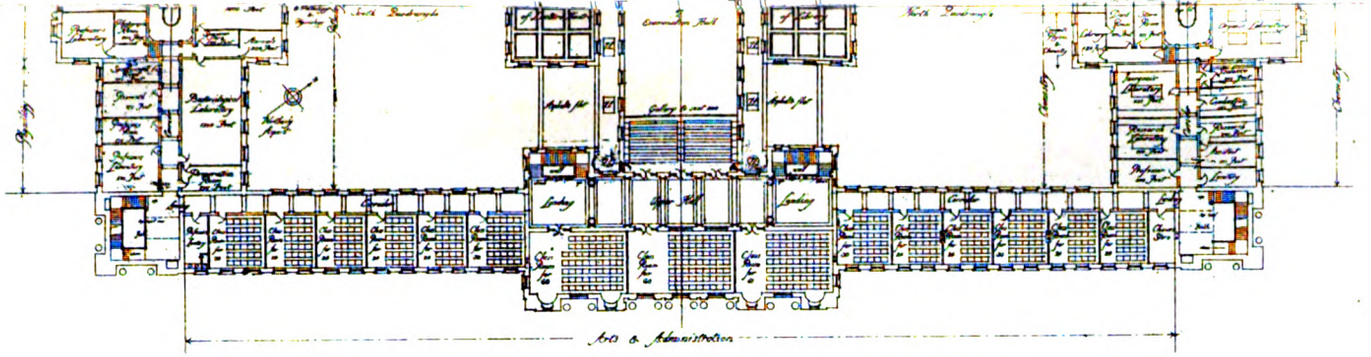


PROPOSED UNIVERSITY COLLEGE DUBLIN

GROUND FLOOR PLAN

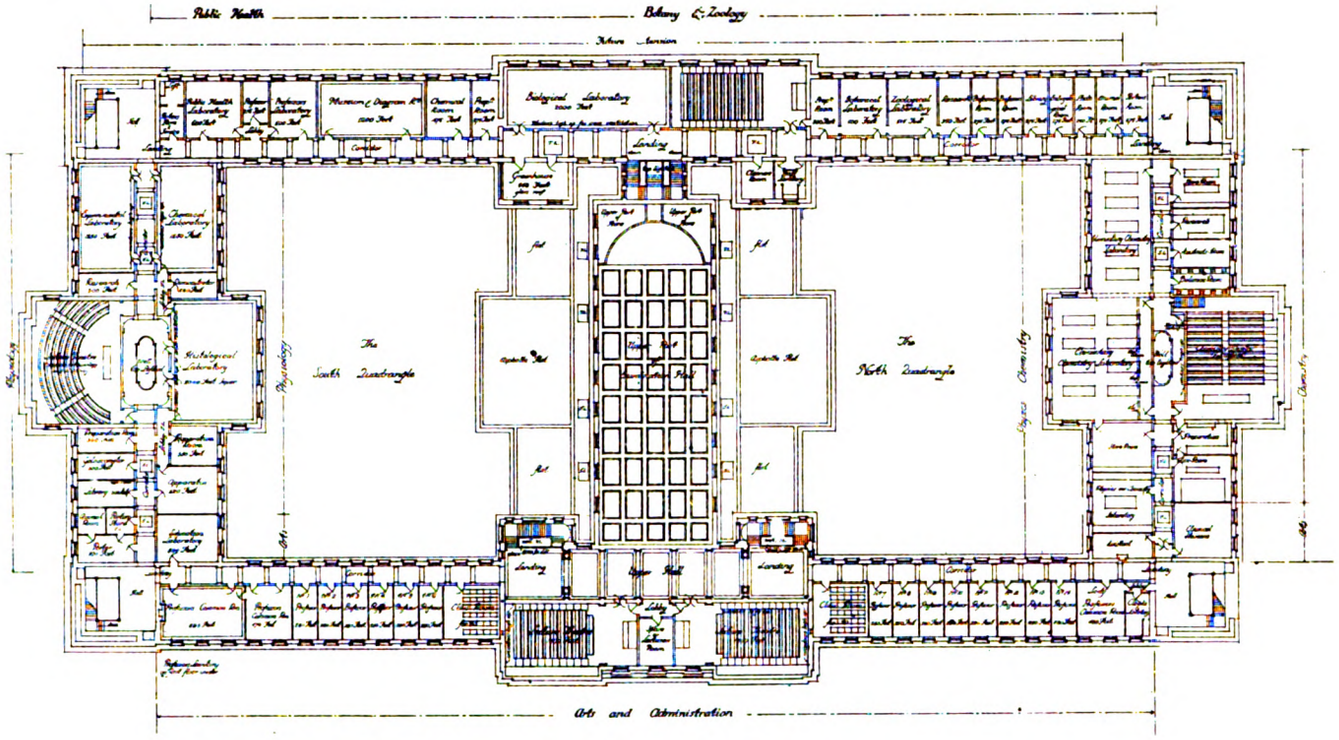


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FIRST FLOOR PLAN

PROPOSED UNIVERSITY COLLEGE DUBLIN



SECOND FLOOR PLAN

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UNIVERSITY COLLEGE, DUBLIN.

R. M. BUTLER, ARCHITECT.

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dangerous substances often stored in a small detached building with an iron door and slate shelves, a wooden floor may be used. A drain, to deal with liquids spilt by accident, which should not be connected with the ordinary drain services, is sometimes supplied in such a room. For small schemes, however, one general store supplied with a box of sand to meet accidents is sufficient.

It must not be supposed that this short account of a chemical department is exhaustive. There are many rooms of importance in a large scheme which cannot be dealt with in the space at disposal. Special laboratories for physical chemistry, electrical work, research rooms, and the like are often wanted, and each have their special fittings. Then there are other minor rooms required for constant-temperature work, liquid air, and so on, to be considered.

To be in full sympathy with the requirements of a laboratory it is really necessary to have worked in one and to have at least an elementary knowledge of the aims and objects of the staff and students who have to use them. This may sound an unwarrantable demand, but it is none too exacting for success unless very active and detailed co-operation from the professorial staff is to be forthcoming.

For the moment the material needs of education are held up by national conditions, but when this period is over it is to be hoped that the fine scheme illustrated in this issue will prove to be the forerunner of others which will give us as a nation an opportunity of making up the leeway in matters of science which the experiences of the late war have shown to be so necessary.

The Architectural Association.

An ordinary general meeting of the Architectural Association was held at 34 and 35 Bedford Square, W.C., on Monday last, the 2nd inst. Mr. W. G. Newton, M.A., A.R.I.B.A., President, was in the chair.

Ten nominations for membership and the election of seven members, together with the reinstatement of Mr. T. C. Agutter (1884), was announced. The donations received to the Endowment Fund during December include £25 3s. from the Massachusetts Institute of Technology (Department of Architecture).

Mr. H. S. Goodhart-Rendel then gave an address, illustrated by lantern slides, on "The Study of English Architecture of the Seventeenth and Eighteenth Centuries."

In his introduction Mr. Goodhart-Rendel explained that he was not immediately concerned with architectural history, except in so far as it helped one to distinguish between the accidental and the essential in the buildings to be examined. What a man did in art was made neither better nor worse by his having been the first man to do it.

To-day, as in the seventeenth and eighteenth centuries, "the decorative part of civil architecture" (Sir William Chambers's phrase) consisted chiefly in the application of orders. Now, as then, this decorative part very often has the upper hand of the useful part, and a building is made Corinthian first and convenient afterwards. The order may either be present in the body, with columns and pilasters, or present in the spirit, with nothing of it embodied save the entablature; but present it will be, exercising the discipline of a drill-sergeant over the projections and recesses, the solids and the openings of the design.

Of the orders themselves Mr. Goodhart-Rendel did not think there was much to be learnt from the English buildings of the period under discussion. From the days of de Vries's Dutch pattern-book to those of George Richardson's book of Pergolesiesque orders, the orders were re-drawn by nearly every architect who ventured into print. Sir William Chambers, alone of all these would-be Vitruviuses, composed a set which fear nothing in comparison with the accepted Italian examples. There are, however, one or two lessons to be learnt from a study of the use of the orders during these two centuries. First, the Georgians unanimously rejected the peculiarities of Vignola, who assigned to the entablature one-fifth of the total height of the order, whatever the order might be. If Vignola's proportions are taken as normal, very different effects will be obtained from those produced by Jones or Wren or Chambers. In the detail of bases the Georgians were extremely Palladian, save that they missed, without exception, the strongest characteristic of his Attic base to the Doric order. Their poverty of base should be avoided. Vignola's composite cornice is seldom, if ever, to be found in English reproductions, though this particular order, in spite of the purists, enjoyed special favour in this country during the seventeenth and eighteenth centuries. At St. Paul's, at Somerset House, and in the Banqueting House at Whitehall, the composite cornice used is that adapted by Palladio from the façade of Nero.

To the English architect of the eighteenth century Palladio rather than Vitruvius was the old man of the sea; but even with that burden he could occasionally move freely. The faults of the Anglo-Palladians, however, are rarely to be seen in contemporary French work. The Frenchmen of that time did not under-window their buildings; they seldom put servants into basements or sent their masters upstairs by an outside staircase in the rain; they eschewed large porticos, and they did not suppress chimneys. Inigo Jones did not teach his countrymen to profit by the Renaissance so well as Philibert de l'Orme did his. The Palladian hypothesis is a hard one to accept, and without its acceptance a great deal of English neo-Classical design must be distasteful. Wren, Vanbrugh, Hawksmore, and the eccentric Archer—these four alone seem to have escaped the obsession. It is in the study of the work of the first three of these men we can hope to find the greatest profit that the English eighteenth century can afford us.

St. Paul's Cathedral, said Mr. Goodhart-Rendel, is one of the most curious buildings in the world. It is a cathedral with a nave, aisles, and clerestory put inside a curtain wall of imaginary two-storeyed architecture. The upper storey of the side elevations, being a sham with nothing behind it, can have no windows except the little ones in the pedestals of the niches, which windows light the spaces between the vaults and the roof of the aisles. Scarcely so extraordinary, but still very peculiar, is the treatment of the central space beneath the dome. This is octagonal on plan, and displays eight great arches whose haunches at their springing are so close to each other that their bearing could be received by a single pilaster of the internal order. Such a pilaster would, of course, be absolutely inadequate to support the dome. Therefore, each canted arch is blocked for a certain distance on either side with what is treated architecturally as mere filling-up, but what must in reality be the main body of the great piers upon which the dome rests. There are then in the very essence of the design of St. Paul's two instances of wanton irrationality, of which neither is justified by its result. The wrong-headed ingenuity with which he has packed one kind of building into the skin of another and refused expression to the main supports of his magnificent dome is characteristic of his method of design. Wren was clever enough for anything, and where he found no opportunity for cleverness he made one. As a result of the conditions imposed upon him, few of his City churches are absolutely very good, but all of them are marvellously good considering the difficulties under which he worked. The only church which he built upon a new site is that of St. James's, Piccadilly.

In the year 1710 Parliament enacted that "fifty new churches should be erected in or near the populous cities of London and Westminster, or suburbs thereof." This enactment was only partially carried into effect, but to it we owe the noblest of our neo-Classic churches. To it we owe in particular the new foundations of St. George, Bloomsbury; St. George-in-the-East and St. Ann's, Limehouse, together with the sumptuous rebuildings of St. Alphege, Greenwich; Christ Church, Spitalfields, and St. Mary Woolnoth. These five comprise the church-

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building achievement of Nicholas Hawksmore, immeasurably the greatest English architect of his time. To the same enactment we owe James Gibbs's much-admired churches of St. Mary-le-Strand and St. Martin's-in-the-fields; John James's St. George's, Hanover Square, and St. John, Horsleydown; Thomas Archer's St. Paul's, Deptford, and St. John's, Westminster.

These buildings are of a type peculiar to England which cannot be found elsewhere. For a project for a royal palace, the Louvre or the Caserta will teach more than will Hampton Court; for a project for a great house, Wentworth or Kedleston will prove a doubtful model. This country has no eighteenth-century triumphal arches like the Arc de l'Etoile or the Porte St. Martin; nor theatres like the grand one at Bordeaux or the little one at Amiens. But for designing a Protestant place of worship there are many models by Wren in England, and for a Catholic church there are in the works of Hawksmore, and in some others by Wren, models equally applicable.

Since mediæval times the design of great buildings has not been the English architect's forte—he has had little opportunity of building them and he has never overcome the disadvantages of inexperience. Somerset House, Greenwich Hospital, Wren's work at Hampton Court, the University at Edinburgh—all can teach much of detail, but not much of the organisation of a great plan. It is rather in the design of buildings comparatively humble and in the use of comparatively humble materials that the modern architect can learn most from the practice of his seventeenth- and eighteenth-century predecessors. The smaller houses of the Wren School have become, indeed, the most popular among the accepted models for modern house-building. Not only are they studied, which is good, but they are copied, which is bad. Architects should beware that they do not study the beautiful smaller houses of the neo-Classic period in a sentimental spirit, but wrest from them what they have to teach in form and arrangement. In plan perhaps they cannot teach very much since modern demands for convenience and economy have greatly altered the practice of house-planning since the days of the Georges. The architect should try to winnow the grain of indigenous neo-Classicism from the chaff of Palladianism. Doing this the early and late divisions of the period will be found more useful than the style of the middle years.

The genial work of Jones, of Webb, of Wren, and the grandeur of the style of Hawksmore and Vanbrugh on the one hand; the modest and graceful design of Gandon, Adam, and of Wyatt on the other: these are both in their different kinds very instructive. The designers who worked in the years between these two groups suffered generally from a formalism for which there is to-day neither justification nor demand.

A vote of thanks was proposed by Mr. L. S. Sullivan. Among those who took part in the discussion were Messrs. J. Alan Slater, Harold Falkner, F. E. Bennett, Hon. H. A. Pakington, W. T. Benslyn, J. M. Easton, and Mr. W. G. Newton.

Epsom War Memorial.

This memorial was unveiled on Sunday, December 11. The granite Celtic cross is a monolith, 18 ft. high, standing on three granite steps. On the front is a carved figure of our Lord. The arms of the cross are filled in with foliage. At the foot of the cross is a wreath, and on the steps an inscription is engraved. On the back of the cross is a crown, and the arms are filled with the rope pattern. On the shaft is a Crusader's sword. The whole of the carving is admirably executed. The cross itself stands on a grass bank, and is approached by circular York stone steps. There is a wide York stone path, laid crazy pattern, all round, having as background a yew hedge, with two openings left for gates, which are to be filled in with wrought-iron gates, in memory of the University and Public School Corps, and sloping grass banks with low wall in foreground.



EPSOM WAR MEMORIAL.
Capt. W. H. Hatchard-Smith, A.R.I.B.A., Architect.

The memorial and surroundings have been designed by Captain W. H. Hatchard-Smith, A.R.I.B.A., 6 Duke Street, Adelphi. Messrs. Harry Hems & Sons, sculptors, Exeter, have executed the work; Messrs. Henry Taylor & Sons, builders, Epsom, are carrying out the steps, walling, &c.; and Mr. Harknett, nurseryman, Epsom, the grass banks, and yew hedge.

The "Architect" Fifty Years Ago.

JANUARY 6, 1872.

COMPETITIONS.

The year has produced the usual crop of public competitions; they have most of them led to a greater or less degree of difficulty and dispute, and there is hardly one of them which can be pointed to as having been thoroughly satisfactory in its bearing upon the general question of architectural progress, or in its solution of the individual problem proposed. The most conspicuous was the limited competition for the Criterion, to be built for Messrs. Spiers & Pond; the architects competing undertook to accept 1,000*l.* in lieu of commission upon an outlay which will in all probability range between 30,000*l.* and 40,000*l.* Mr. Verity was successful, with a design no doubt most carefully adapted, as far as arrangement goes, to the requirements of the undertaking, but of a commonplace though rather ornate French Renaissance character. Other competitions for public buildings at Leicester, Birmingham, Halifax, Gateshead, and Blackburn, will be in the memory of our readers. It is idle to urge upon architects and their employers that competitions are of little service in the best cases, and in many instances are most disadvantageous to all concerned; but there is no doubt that this is the real truth of the matter, and the sooner it is recognised the better.

Major-General The Rt. Hon. J. E. B. Seely, C.B., C.M.G., P.C., D.S.O., M.P., has consented to accept the office of President of the Thirty-third Congress of the Royal Sanitary Institute, to be held at Bournemouth from July 24 to 29, 1922.

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New Books.

"Daniel H. Burnham, Architect, Planner of Cities." By Charles Moore. In two volumes, illustrated. (Houghton Mifflin Company, Boston and New York. 1921. $20.00.)

Something less than the matter of these two volumes would have sufficed to deal adequately with their subject. Less family history, less diary, and the omission of certain letters, could have made for simplicity and a greater strength in the character study.

Yet it is true that the intricate histories of each of the great projects with which Burnham was associated, of which this work is largely composed, will be found instructive reading even for those who are already familiar with previous records of them.

Burnham was one of those men of whom there are too few in our profession. Possessing great driving force, and an idealistic appreciation of architectural composition, he had the breadth of mind to realise, at least in the earlier part of his career, that his own considerable powers of design were subordinate in merit to his administrative capacity. He continually sought for higher artistic merit in others, and, having found it, supported it strenuously. He was at all times the devoted admirer of the art partners with whom he associated himself.

It is an irresistible pose with which to outface the philistine—this diplomatic and business acumen of a great mind in love with the ability of his more timid brethren. This is the power necessary for bridging the gulf between our dreams and their accomplishment, and it is a pose which Burnham filled to admiration, even when in later years he came to attach more importance to his own capacity for design.

As an architect Burnham did excellent work, but it is as the guiding and compelling force behind other and perhaps more delicate art forces that his true greatness lies. The movements in which he played so great a part were to some extent provided by the times, but the generous initiative which assembled all that was most talented in America to use these opportunities in a manner which has inspired and made possible the present high level of public architecture in the States was largely his.

It is evident from these records that even McKim owes much to the counsel and support of Burnham, and Saint-Gaudens, Post, Olmstead, and Millet were among those whom he was the first to bring together as a family of artists working on a common task out of which a true articulation was established between architecture and the associated arts in America.

Among the records of special interest for English readers will be found a series of notes on the proposed Washington Cathedral, and also an illustration of the design which was accepted in the teeth of opposition from Burnham and McKim. The reader will probably take sides without difficulty.

There are altogether some 120 illustrations of varying interest and quality, including several in colour by Jules Guérin. W. H.

"A practical guide for the water supply of towns, estates, villages, houses, etc." (Hayward-Tyler and Co., Ltd. New edition. 3s. 6d.)

THIS book is issued by Messrs. Hayward-Tyler and Company, and can be obtained from them at their London premises. Even if to an extent it must be regarded as a trade publication and catalogue, yet the practical information it contains will prove very valuable to those who are desirous of acquaintanceship with the arcana of the methods of water supply.

A sensible feature of the book is that prices are omitted; it is far better for enquirers to learn these direct from the firm at the psychological moment. Of course the value of the book lies in the general information contained, by which architects and others may benefit, whilst preserving an entirely open mind as to the firm to be employed. There are a few errors in the text, amongst others on page 65, thirteenth line, the page reference should be sixty-three not sixty-one. On page 92, third line from the bottom, read feet instead of pounds. Surely (referring to page 117) fifteen pounds per square inch being regarded as one atmosphere, thirty pounds must be denominated either two atmospheres or else as "*one* atmosphere over-pressure." The compiler of this book would have done well to add to the other comparative thermometer scales on the last page the most modern, known as the Absolute Scale.

"Economic trees and their by-products." By Mrs. M. Grieve, F.R.H.S. 1s. 6d. net.

MRS. GRIEVE (from whom copies of this book can be obtained) is the Principal of the Whins Medicinal Herb School and Farm at Chalfont St. Peter, and if in that capacity alone a book such as the one now being considered would receive respectful attention, as it is obviously written by a past-mistress on the subject. The object is to give an account of some seventy species of trees, indigenous to, or else naturalised in, Great Britain, possessing valuable by-products.

The number of trees dealt with agrees with the number of pages occupied by this small octavo manual, and the price asked is well justified.

But, of course, as indicated by the sub-title, the work is of less concern to readers of THE ARCHITECT, than to those more directly engaged in commercial branches, where the by-products of timber may be profitably employed, and to such we recommend the perusal of Mrs. Grieve's book. Her desire to see our rural industries re-established is one which we heartily endorse. We might draw the author's attention to page 63, where the letter "g" is dropped from Amygdalus; and also it might be noticed, that it is customary to write of Wych (not witch) Hazel.

"Modern Painting.—IV." The Work of Campbell Taylor, R.O.I., with a Foreword by Jessica Walker Stephens, 1921. ("The Studio." 7s. 6d. net.)

A FEATURE which is to be commended in the series, of which the present work makes the fourth volume, is the variety of outlook offered in the choice of artists. In every case hitherto, in the work of Laura and Harold Knight, de Lazlo, and Arnesby Brown, there has been a fresh and individual technique and a new subject matter to be studied in the admirable colour reproductions; and the work of Campbell Taylor offers the same variety.

"One mark of Mr. Taylor's versatility," says Jessica Walker Stephens in her appreciative Foreword to this volume, "is his extraordinary power of adapting his treatment to the scale of his canvas. From the immense 'Rehearsal' and 'Bedtime' (now in the gallery of Rome) to the lovely 'Japanese Prints,' the original not greatly larger than the reproduction here given, he can command his handling that it shall not be emptily broad on the vast scale or niggling on the tiny. In many of his works he loves to achieve broad effects in flat tones, in which manner he is very strong, but in others almost stereoscopic." The writer refers, as an illustration of this last feature in his work, to the round table in the foreground of "Interior," the second colour plate here given, while "Japanese Prints" is the first—the "Rehearsal" having been one of the artist's earlier successes, bought for the Chantrey Bequest.

With very great technical ability at his disposal Campbell Taylor is at his best in interiors combined with figures, generally in that Victorian garb which he knows how to treat so attractively. A very perfect example is his "Interior with Figures," which is the last of the plates here, and perhaps the best—"worthy of old Flanders" as Jessica Taylor suggests. Broader in its handling and full of sunshine is "On the Terrace," which hints at the wide vistas of Versailles. In "The First-born" and "Check," figures and background are one harmony of lovely design. In point of reproduction these plates leave nothing to be desired.

S. B.

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Messrs. Rippers' Works, Castle Hedingham.

The traveller on the Colne Valley Line passes through some charming Essex scenery of that peaceful agricultural kind that gives mingled feelings of envy and contentment to the city dweller. But if he alights at the little roadside station known as Castle Hedingham, he will probably notice an air of concentrated activity unlike that of most stations of its size and rustic character. At Castle Hedingham are the works of Rippers, Limited, shop fitters and joinery manufacturers, a firm which has been in business in this part of Essex for some twenty-five years, but was recently reconstructed.

In the siding which gives the works direct communication with the Great Eastern Railway, are a vast number of tree trunks, many of large size and very high grade, waiting to be converted into planks, and ultimately into finished joinery.

Two large powerful jib cranes fixed on the railway side are capable of handling the heaviest trees; in addition, an overhead gantry projects over the railway lines, so that the trees can be lifted right out of the trucks and deposited on the saw bench rollers. The overhead gantry is equipped with electric motors operating the travelling, traversing, raising and lowering apparatus, and has a total travel of 420 feet.

From the siding one enters the mills, where there is a vast quantity of wood-working plant of the very latest description, such as four cutters of all sizes, planing and thicknessing machines, vertical spindles, band-saws, dove-tailers, automatic jointers, chain and chisel mortising machines, sand-papering machines, etc.

The pulsing heart of the works and right in the centre is the power station, where, at the time of our visit, three large gas engines were in motion, developing approximately 600 h.p., and another engine of 400 h.p. was in course of erection. The engines derive their power from suction gas obtained from the shavings and sawdust automatically extracted out of the mill. All the engines generate electricity, which is carried by overhead cables to the different departments. As far as possible, every machine has a separate motor, so that the use of shafting, with its consequent loss of power in transmission, is avoided. Close to the power house there is a mechanic's shop, fitted up with blacksmiths' forge, bellows, anvils, lathes, drilling machines, saw-sharpeners, etc., where all the necessary repairs and adjustments to the mechanical and electrical machinery are carried out.

The timber-drying sheds at Castle Hedingham are one of the largest and most modern in this country. They were installed in connection with the firm's aircraft construction work according to the latest practice, and have a total capacity of 25,000 cubic feet at one time. The scientific drying of timber is a vital point in high-class shop-fitting work. All timber which has passed through these kilns is guaranteed to stand up to its work. The heat is obtained from a large boiler. In close proximity to it is a vertical high-speed steam engine coupled direct to an electric generator, which can be used at any time when the gas engines are out of action.

A walk through the extensive joiners' shops is an interesting experience. Every kind of shop fitting was in the course of manufacture: counters, show-cases, wall fittings, biscuit stands, staircases, lift enclosures, entrance doors, partitions, wall panelling, cash desks, cash offices, in endless variety. The workshops are splendidly lighted, ventilated, and heated, so that the 300 men (to be increased later to 500) are working under the most favourable conditions. The air is pure and bracing.

The general offices of the company include board room, directors' rooms, drawing offices, estimating and general offices. Underneath the general offices are the stores, where are kept all kinds of nails, screws, bolts, nuts, hinges, brass and iron mongery necessary in a business of this description.

The approximate total area of the works, including sidings, is about six acres. The joiners' shops have a floor space of 50,000 superficial feet, the mill 22,500 feet, the offices over 40,000 feet, the power house about 7,000 feet, and the timber sheds about 23,000 feet; the timber drying kilns over 30,000 feet. The works are completely self-contained, even possessing their own drainage installation.

The works are laid out with great care and ingenuity. The prevailing idea has been to save labour and provide for speedy output. There are lines of narrow-gauge railway on the ground level connecting the different departments, and, in addition, overhead run-ways, by means of which material can be transported with ease and rapidity.

Most of the woodworking tools embody in their construction valuable ideas suggested by the long experience of Messrs. Rippers' engineers. Some of these machines are unique in their way, and ahead of anything in the wood-working line for multiple operations. The same spirit of enterprise is to be witnessed in the clerical organisation of the firm; for instance, their system of costing is on remarkably scientific and effective lines.

Messrs. Rippers recently appointed as their London manager Mr. Armstrong, formerly of Bristol, and an acknowledged authority on shop fitting.

Mr. Armstrong has made a close study of shop planning, lighting, heating, ventilation, sanitation, &c., and we know no man more capable of gauging the possibilities of business premises from a shopkeeper's standpoint. His name has always been associated with good workmanship and honourable dealing.

The London offices of the company are at 165 Gray's Inn Road, W.C. 1. Telegraphic address: "Ripperip, Kincross, London." Telephone number: Museum 4826. All communications relating to shop-fitting work should be sent to the London office.

We have been asked to announce that the Union Cable Company, Ltd., Dagenham Dock, Essex, are members of the Cable Makers Association from January 1.

The Committee of the M.C.C. have accepted a tender amounting to £2.268 for the provision of handsome iron gates at the members' entrance to Lord's Cricket Ground as a memorial to Dr. W. G. Grace.

Professor S. W. Adshead, M.A., F.R.I.B.A., is delivering a series of lectures at the College of Estate Management, Lincoln's Inn Fields, W.C., on "Town Planning." The lectures began on January 5, and will continue on January 12, 19, and 26, February 2 and 9, at 5.30 p.m.

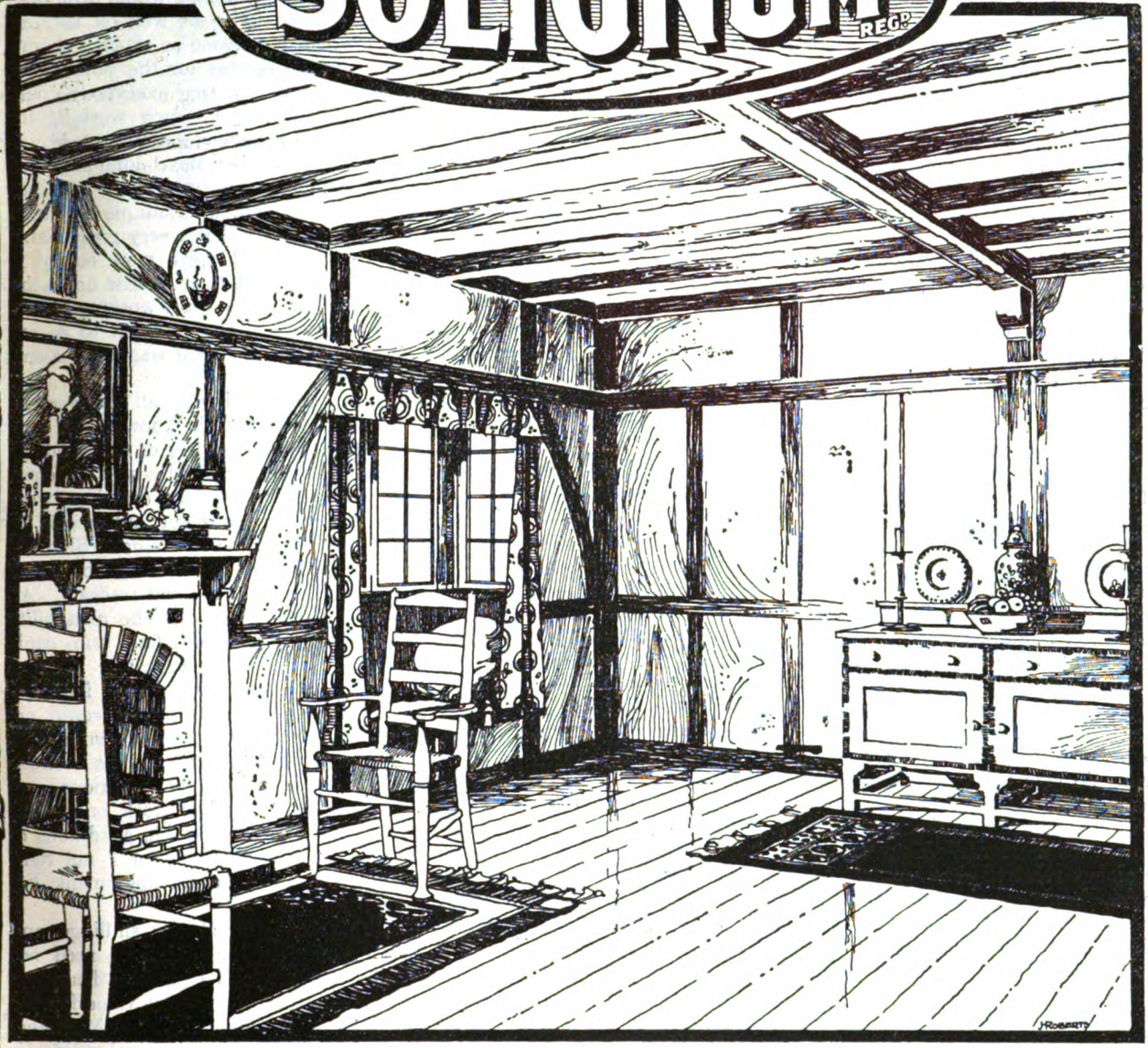
Edinburgh Town Council, at a special meeting on the 29th ult., decided by a majority to proceed with the electrification of the tramways by the overhead system, and to adopt span wires instead of centre poles for Princes Street. The Cockburn Association made a determined effort to save the latter famous thoroughfare from disfigurement by the erection of tramway standards and wires.

The Sheepshanks Galleries, containing the paintings of the Sheepshanks, Constable, and other collections, in the Victoria and Albert Museum are now again open to the public. Owing to the occupation of these Galleries as Government Offices during the War, and to subsequent alteration and redecoration, these rooms have been closed since December 1914. The paintings have been re-arranged, and include several new works received by bequest, notably two portraits by Raeburn and three landscapes by De Wint.

The New Year has brought the customary crop of calendars on to the editorial table. They may be classified in different ways—hanging or standing, plain or coloured, large or small, and so on. Among the firms which, wisely perhaps, have decided that a pleasant picture gives joy for twelve months are: F. G. Edey & Co., Ltd., electrical engineers, 25 Warwick Lane, E.C.; Shaw & Sons, Ltd., Local Government publishers and stationers, 7 and 8 Fetter Lane, E.C. 4; The Osborne Co., Ltd., 242 Liverpool Road, N.; and R. A. Evans, Ltd., lift engineers, Prospect Road, Leicester. The latter firm selected a particularly pleasing R.A. exhibit, "The Bluebell Wood," by R. Wheelwright, which suggests a promise of sunshine days ahead.

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Sheffield, South Yorkshire and District Society of Architects and Surveyors.

[President's Address.

Custom dictates that the President of this and similar Societies shall open the session with an address. The address is more or less instructive according to the skill and ability of the writer, and more or less interesting according to his fortune in selecting a subject agreeable to his immediate audience. With this end in view it is customary to select some topical subject or some fad or fancy of the moment as a text for the address. There are many such topics at the present time.

"Housing."—This I rejected as unsuitable because housing, by which I mean Government housing, is dead, and if we have any desire that the people of this country shall ever be properly housed we must most devoutly pray that it is not only dead but utterly and completely cremated.

"Relativity."—I soon concluded that I know nothing about that, and I gravely doubt whether the man who invented it does either.

"The State of the Architectural Profession."—This text is more suitable at the present moment for a funeral oration than for an address to a live and flourishing Society.

"Unemployment and Waste."—Here I think I have found two matters that we are all interested in.

"Unemployment."—I shall refer to unemployment in the building and its allied trades principally. There is no doubt that unemployment at the present moment is a very grave trouble, but, like all the troubles of mankind, it is mostly of man's own making, and if man's trouble is of his own making it may be properly assumed that its cure lies mostly in his own hands. An Act of Parliament is quite useless as a cure. It may alleviate, but it will never cure. In my opinion the present unemployment in the building trade has mainly arisen because for some time past the trade has not given value for money received, and I am equally of opinion that unemployment will be reduced to a minimum as soon as all parties do give value for money received, and not till then.

It is customary to throw all the blame on the workman. This is untrue. I say all parties must give value for money received—the contractor, the manufacturer, the merchant, the skilled workman, the labourer. The three first named must be content with reasonable profit. I fully realise that times have been difficult. The unstable state of the market for materials and labour, the interference of politicians who cannot govern but who will meddle, and other uncertain factors made it necessary for a contractor to cover himself against circumstances out of his control, but it ought now to be possible to remove most of these uncertainties and return to more normal conditions. If trade is to revive builders must look for their profits from what they can save rather than from what they can make. Now, what is to be the workman's share in the revival?

The first essential is that a serious and determined effort shall be made to counteract the pernicious doctrine that limiting output increases employment. I know that it is false, you know that it is false, but it is very difficult to convince the workman that it is so. If a bricklayer, for instance, sees a heap of 1,000 bricks he is sufficiently educated to calculate that if he lays 1,000 bricks a day there is one day's work for him, whereas if he only lays 333 there are three days' work. It is useless telling him that if he lays that 1,000 to-day there will be a heap of 2,000 there to-morrow. He naturally replies that may be so, but there are only 1,000 there now.

The second essential is that they shall give value for wages received. It is customary to cry, "Wages must come down;" "Wages must come down." Why must they? If you say wages must come down or production must go up I agree most fully, but the point I want to press most strongly upon both employer and employed is that if production or output, call it what you will, goes up to the present level of wages there would be no need for wages to come down to the present level of output. Think of it: if everybody—I say everybody, mind you—doubled his output the cost of everything would drop one-half, and everybody would be twice as well off because the money he earned would buy twice as much. I am, of course, speaking in round figures for the purpose of illustrating my point. I don't say that everybody could double his output; I have had many men working for me during recent times who have given of their best. I desire to acknowledge the work they have done here and now, and to thank them for the example they have set to younger and less willing men, an example which is bearing fruit to day; but I do say that a very great many of the people in the country could give more output if they tried, and if they cannot get their output up to the level of their pay in the present very short working hours, the hours should be extended to enable them to do so. After all is said and done, it is the total wage at the end of the week that counts.

There need be no fear of mopping up all the work in the building trade—of my own certain knowledge I can say that two years ago there were scores of thousands of pounds worth of building work ripe and ready for commencing; in many instances the working drawings were made, in some the quantities were got out ready for tendering. If that work had gone on the trade in Sheffield would have been fully employed to-day and for many months to come, and so would the allied trades. All was stopped. Why? First, because of the unstability and uncertainty of cost—contracts for a fixed sum could not be obtained. Secondly, to the unsettled state of labour, which made it impossible to fix a time for completion. Consequently the building owner could not ascertain the expenditure to which he was committed, or how long his premises would be upset and his business crippled and inconvenienced by building operations.

To-day the city is crammed full of work only waiting for reasonably stable prices and stable conditions of labour to be put in hand. Gentlemen, am I not right in stating that the cure for this unemployment lies mainly within the trade itself.

"Waste."—With income tax at six shillings and rates at practically a pound in the pound we need not look far for examples of waste, and I have no doubt you will all agree with me that we do not get value for the money we pay into the Imperial and Municipal Exchequers. Waste, particularly municipal waste, is detrimental to our profession, and tends to produce unemployment in the building trades. High rates make it impossible to erect buildings to let at an economic rent, and they certainly deter occupying owners from enlarging and improving their premises as they otherwise would do. The development of the city is obstructed and the enlargement of the rateable value is stopped.

Economy does not solely consist of the avoidance of expenditure, it equally lies in the expenditure of money wisely and profitably. A considerable amount of municipal expenditure must necessarily be directly unproductive, but if care and thought are exercised much of the unproductive expenditure may be made to be very profitable indirectly.

The great aim and object of a municipality should be to assist and encourage the increase of rateable value in every way it can, because that is the best way to bring the rates down, and the greatest care should be taken to avoid any scheme which tends to obstruct the development of rateable value, or to reduce it.

It is very easy to be generous with other people's money, but municipalities should be careful to avoid being led into unwise or unnecessary expenditure by a

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popular cry of the moment, or by zeal for a charitable or other worthy cause.

I will illustrate my point by an example—the proposed municipal hall. When selecting a site for an unproductive building such as this (I think we may call this unproductive, because it will pay no rates and the income therefrom will not pay the annual charges for upkeep and interest and sinking fund on the capital expended) care should be taken that as little existing rateable value as possible shall be destroyed; that the nature of the proposed building will not tend to depreciate the rateable value of surrounding property, or to prevent or retard its development, but that it shall be placed where it will tend to improve the surrounding neighbourhood; that is to say that the building should not occupy a valuable site in a main business street where high rateable value already exists. It derives no benefit from such a situation—indeed, there are many reasons which make a site off the main street preferable and more desirable.

The site selected for the hall is the part in the heart of the city most ripe for immediate development into high-class shop and office buildings. Such buildings would have been erected thereon if the Corporation had not scheduled it and served notice for compulsory purchase. The erection of such premises would have encouraged similar development in Division Street, signs of which are apparent, and probably this development would in course of time extend down Cambridge Street and Burgess Street to Sheffield Moor, thus creating a most valuable shopping centre, resulting in an enormous enlargement of rateable value.

The erection of a concert hall on this site will kill that value of the adjoining property for shopping purposes and will completely prevent its development for shop property. Thus the erection of the hall in this position will not only destroy the rateable value which already exists, but it will stop the increase in rateable value which would have accrued to the surrounding properties. This is waste, and waste that ought to be prevented.

The proper site for such a hall is in a street adjacent to but off a main street, where there is less noise and traffic —such a street as Norfolk Street, for instance; or, better still, some site of no particular value for any particular purpose covered with and surrounded by derelict buildings, the whole of which can be purchased and demolished at small cost and an open space of considerable size formed for the building to stand on, with the result that the surrounding properties become more valuable instead of less.

With care I feel sure that this building could have been so placed that the improvement in its immediate neighbourhood would have resulted in such an enlargement of rateable value as to more than repay the charge on the rates that the hall itself will incur. Profit would result, and the city would be improved. I have in my mind the great results of New Street, Birmingham, where old worthless properties were made to give place to new. I express no opinion whether such a hall is necessary, or whether it should be constructed at the ratepayers' expense, or whether it is fitting and proper to erect a place of amusement as a memorial to our "Glorious Dead"—I only quote it as an example of waste,—but I do express the opinion that if our city fathers have the real interest of the city at heart, and really desire to assist its development and trade, they will at once seriously consider the desirability of setting this site free for its immediate natural development. To tie it up as it is tied up at present is suicidal.

Now, in conclusion, a word on the general architectural position. It is bad, very bad, but I have always held the view that things would come right if they only got bad enough soon enough—that is to say, if we learnt sense before things had become completely rotten. I am inclined to think that things have about reached that point. There is plenty of architecture and building waiting to be done. Much of it must be done if general trade revival is to come; it only waits a return of confidence and stability, and unless our old country is to go under altogether that will come, provided that politicians will leave commerce alone and allow the good old rule of supply and demand to settle the market.

I thank you for your patient hearing—I fear I have brought a storm on my head, but I feel that certain things should be said, and I trust that the ultimate result will be mutually beneficial.

Sir John Jarvis, Bart.



One of the new baronets, Sir John Jarvis, is closely connected with architecture and the building trade, as he is chairman of J. Jarvis & Sons, Ltd., the building and engineering contractors, and was its managing director from 1906 to 1919. The firm itself was established as far back as 1850 at 250 Hackney Road, E.; it still occupies these premises, in which the business was started by Sir John's grandfather.

Under his direction many important contracts have been carried out by his firm, including churches in Australia, Grimsby, Little Coates, Harrogate, Southend, and elsewhere. He built the Sark Lighthouse for Trinity House, the Radium Institute, the Lancashire Electric Power Company's Manchester works, and the Dublin United Tramways Company's chimneys.

The works of the firm have never been closed for a single hour owing to any industrial dispute.

Sir John Jarvis has little time now to devote to building, as his services have been, and are, greatly in demand elsewhere. He is managing director of a well-known foreign banking and financial house, deeply interested in London's oldest financial daily newspaper, and has other business interests. He has what is called a mathematical mind, and is a born organiser.

A scheme is in hand for the immediate creation at the Alexandra Dock, Newport, Mon., of the largest cold stores on ground level in the United Kingdom. Mr. Thomas Morgan, J.P., of Messrs. T. Morgan & Sons, shipping providers, is keenly interested in the proposal.

Reference is made by the Bishop of Lincoln, in the "Lincoln Diocesan Magazine," to the urgent need for repair of the Minster. His Lordship expresses the hope that there will be a large attendance at a county meeting which the Lord-Lieutenant has called for January 13. "It is no doubt unfortunate," he adds, "that so large an expenditure should be necessary at the present time, but reports which have been received from Sir Francis Fox and Sir Charles Nicholson make it abundantly clear that it would be perilous to delay further the necessary work of repair. Happily the most immediately important work can be done by 'grouting,' which is now a well-understood system, and when the work is accomplished this priceless and magnificent building should actually be stronger and more secure than it ever has been before. It is very pleasant to read in the reports of the experts who have been consulted their warm approval of the work done for the cathedral by Mr. Godfrey, our clerk of works, and by Mr. Davis, the master mason."

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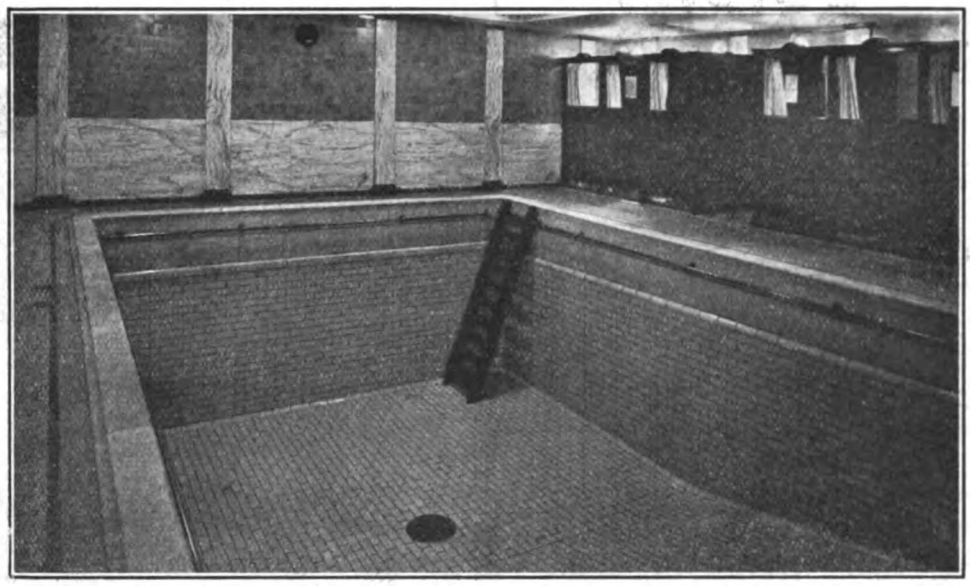
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Swimming Bath on the "Empress of Canada."



We reproduce herewith an illustration of the luxurious swimming bath provided for the use of passengers on the new Canadian Pacific liner "Empress of Canada," now being fitted out on the Clyde.

The magnificence of the interior decorations of a modern passenger liner necessitates the greatest care being taken to avoid damage being done thereto by water, either from without or within the vessel, and it is interesting to note that the swimming bath referred to is made completely watertight by the use of a cement waterproofing compound which was first employed for a similar purpose on the White Star liner "Aquitania" some eight years ago.

The method of waterproofing consists of lining the bath with a cement and sand rendering to which a suitable proportion of the cement waterproofing compound "Castor" has been added in the ordinary process of mixing the materials. The cement rendering is thereby made impervious to moisture, and the process has the further advantage of preventing the tiling being discoloured, the titles being bedded in the waterproofed cement.

This application of a cement waterproofing compound serves to illustrate its reliability and the unlimited possibilities for the intelligent use of the product.

General.

A proposal for the organisation of a house-building department was defeated at the last meeting of Greenock Corporation by fifteen votes to eight.

The preliminary work for the erection of the Kendrick Girls' School at Reading is to be proceeded with. Messrs. Charles Smith & Son, of Reading, are the architects.

H.M. Office of Works has agreed to accept the charge of the Abbot's House, situated at Arbroath Abbey, one of the oldest houses of its kind in the country. The Abbot's kitchen is remarkable for its finely groined roof.

The Glasgow Corporation have acquired sites for new libraries in Shettleston and Partick, and building operations are to commence at an early date. The Elder Library, Govan, is also to be extended. It is also proposed to erect a library at Whitewich.

The will of Mr. William Henry Clarke, of Southwark Crescent, Hyde Park, W., of Messrs. Clarke and Bracey, builders and contractors, has been proved at £70,124 (net personalty £67,091). Testator left nearly the whole of his estate among some fifty charitable institutions, hospitals, and others.—The will of Mr. Thomas Valentine Burrows, of Hose Side, Wallasey, Cheshire, builder and contractor, an ex-Alderman and ex-Mayor of Wallasey, has been proved at £47,205.

Mr. A. Pollard, the chief architect of the North-Eastern Railway, retired on New Year's Day, after about fifty years' service with the company. He succeeded the late Mr. W. Bell as chief architect in 1914, and was associated with Mr. Bell in the architectural work on the new headquarters of the company at York, the new stations at York, Darlington, and Hull, and all the important buildings during the last forty years. The directors have appointed as Mr. Pollard's successor, Mr. S. Wilkinson, F.R.I.B.A., of London, who has been engaged in private practice in London and in India, and who has had experience of railway and public works construction in India.

The last meeting of the Council of the Institute of Scottish Architects was held at 117 George Street, Edinburgh, Mr. H. M. Paterson, Glasgow, presiding. It was intimated that the petition for a Royal Charter was completed, and would be lodged with the Privy Council at an early date. With regard to housing fees, a representative was appointed to meet the Practice Committee of the R.I.B.A. in London to submit the views of the Scottish architects. There were two elections to Associateship received from the Glasgow Chapter. It was remitted to the Competitions Committee to decide as to what was comprised in a small limited private competition. A committee was appointed to consider and report to next Council meeting as to the issue of a journal quarterly to the members.

Housing News.

The Henley Town Council are about to apply to the Ministry of Health for authority to erect a further twenty houses on a site already laid out.

The Hull Corporation Property Committee are about to to build houses independently of State aid. The scheme approved comprises seventy-four houses at an estimated cost of £55,000.

Building operations in connection with the Southfield Sanatorium of Glasgow Corporation at Newton-Mearns will be commenced early next year. Accommodation is to be provided for 300 patients, and the cost has been estimated at £300,000. The Scottish Board of Health has approved of the scheme, which will provide employment for many men. The sanatorium will be built on farm colony principles.

The Birkenhead Housing Committee have been notified by the Ministry of Health that sanction can only be given for a contract to build fifty-four houses on the Hoylake Road and Sumner Street estate, and that the Ministry will be prepared to allocate a further fifty-five for Birkenhead at a later date. The Committee, who had provisionally accepted the tender of Messrs. R. Costain & Sons for the erection of 109 houses on this estate, now recommend the Council to accept the tender of the same firm of £33,833 for the fifty-four houses.

It was reported to a meeting of the Birmingham Housing Committee last week that 1,506 Corporation houses were now occupied, and 410 houses under construction. The Committee received a communication from the Ministry of Health stating that they were again slightly reducing the floor area of houses. The average superficial area is to be 920 feet instead of 995 feet, as at present. The cost per superficial foot is from 13s. to 14s. The Ministry are also pressing for more houses of the non-parlour type. It was decided that in future all baths put into Corporation houses shall be of British Empire manufacture. A form of contract was approved as between the Committee and the Birmingham Building Trades Employers' Association.

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VOL. CVII.—2769. THE ARCHITECT JANUARY 13, 1922

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The Coming Year.

ONE of our contemporaries says that good times are coming, and we hope it is correct, but at present we cannot say that the outlook is altogether rosy. We are still promised economy in administration in the future, and may have a general election precipitated upon us to find out whether we really care about it, while, at the same time, it has not been considered necessary to find out whether the country approves of greater fundamental changes in the constitution of our Government than have been effected for many centuries. But apart from these movements in high politics, we have the knowledge that prices are generally falling, though those of materials are still high enough to retard building activity. Wages have certainly fallen, and, better still, the worker shows a disposition to put in better time and to avoid the extreme policy followed by the miners to their own and the national undoing.

Our contemporary says that "the world-wide depression is passing away like a summer thundercloud," but surely the writer is either a confirmed optimist or is influenced by the pleasing effects of a good dinner? We should not have described past and present troubles as a summer thundercloud, but as a tempest which at the best may be said to show signs of having reached its maximum, so that those who have so far weathered the storm may hope to be able to carry on. We quite agree with our contemporary that "unanimity among employers and employed" should bring about better trade, as was said at the time of the Armistice, in 1918, when we were going to enjoy a period of unparalleled trade and prosperity which we would share as brothers-in-arms. Unfortunately the outcome was not exactly what we hoped it would be, and our people, unlike those of France, Belgium, and Germany, did not get to work, but indulged in sectional strife, which has made things harder for everyone. We do not wish to be pessimistic, but the chief hope that we may reasonably entertain seems to be that extreme methods are generally discounted as being ineffectual to produce results. And, seeing the evil which has resulted from political promises about issues which are governed by economic facts, we hope that, in future, governments and politicians may refrain from promises the fulfilment of which is beyond their province and the expectations aroused by which have undoubtedly led to widespread unrest.

If our rulers had not instituted their recent housing policy, but had simply exempted working-class dwellings from the incidence of rates, and had given credits to those private speculators willing to cater for the public wants, more might have been done without the necessity of incurring great public debts. If the Government's policy alone, as we have often been told, stood between the country and revolution we should before this have had a revolution because we have not had the houses promised. If, on the other hand, the Government had forged what is called the "Geddes axe" in the early days of 1919, the public would have been more lightly taxed and would have had more money to invest in the business which creates employment. And while their first promises were, as they were warned, impossible of execution, economy was well within their province. The overwhelming desire of the country is in brief for sane and economical administration, for the cutting out of speculative issues and immense plans, and the political party which bears this in mind would find its popularity lasting.

In professional circles we have to record the work done by the Unification Committee, which is likely in the near future to result in the amalgamation of closer union of the Institute and the Society of Architects, the initiation, through the agency of "The Times," of a movement for the promotion of art in common life, and for the note of warning sounded by Mr. Collcutt on the tendency of the architectural schools both to flood the profession with new men and to prepare them unwisely for the pursuits they wish to follow. These different movements are one and all indications of a feeling of unrest and want of confidence in things as they are. We have always held that unification is a good and desirable thing in itself, that registration, if it can be brought about, should be effected not because we believe it will do much good, but because we can often reveal adverse causes best by removing causes which are thought to be adverse, but which are in reality almost immaterial. A man's success will always depend on his ability to recognise what the public really want and his power of giving it them, and not on any artificial powers a professional may obtain from the Legislature to protect its individual members. Again, if art is not sufficiently recognised in our lives the fault rests with those who cannot interest the public—which may or may not be a possibility, but in no case is talking likely to promote the desired end.

Competitions of note have been infrequent, partly because few public buildings are being erected, partly because we believe promoters are beginning to think that the machinery proposed by the Institute is somewhat elaborate and expensive. This, though it may seem a hardship to those younger men who have yet to win their spurs, is perhaps a blessing in disguise, for it may lead them to look for better and more certain methods of starting a practice than is afforded by the quicksands of competition chances.

We believe that the prosperity of nations and individuals alike is mainly governed by the natural resources of countries and the ability and energy of individuals, also the manner in which they are

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utilised. The sooner we, whether as citizens of the State or members of a profession, recognise this, the sooner we are likely to discover means of obtaining the prosperity all desire. We have to purge ourselves of the idea that legislation, whether national or professional, can do much good to us, and in proportion to the extent we succeed in getting rid of chimeras we shall be likely to see our way to meet the demands made on us and to ensure all the prosperity we can reasonably hope to have.

Illustrations.

BURGOS CATHEDRAL. See Article (p. 86) by SELWYN BRINTON, M.A.

THE QUEEN MARY MATERNITY HOME, HAMPSTEAD. E. VINCENT HARRIS, F.R.I.B.A., Architect.

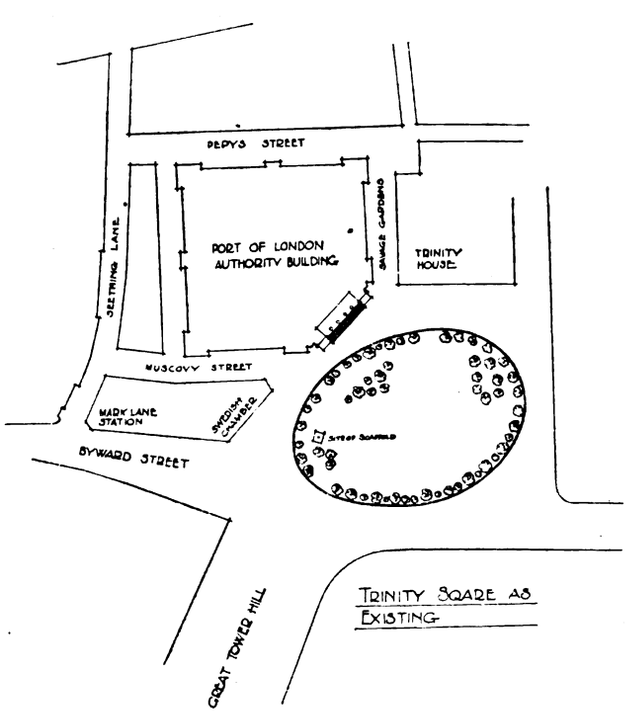
STUDIO AT HAMPSTEAD FOR PHILIP DE LASZLO, ESQ. EDWIN COOPER, F.R.I.B.A., Architect.

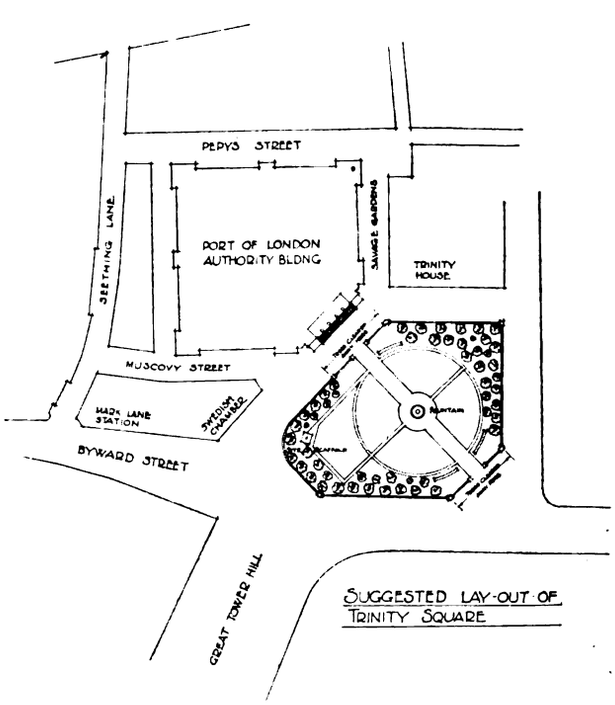
PROPOSED CENTRAL HEADQUARTERS BUILDING FOR THE INTER-CHURCH COUNCIL, NEW YORK. B. G. GOODHUE, Architect.

We are glad to illustrate this masterly design by Mr. Bertram Goodhue, who has succeeded in producing the finest conception of a skyscraper yet designed. The building is to contain a large church, above and round which are rooms devoted to the offices in connection with it and presumably other accommodation. If built, this great building will be twice the height of the tallest building in the world, of 1,000 feet high, nearly one-third the height of Snowdon. The great blocks which occupy the lower angles of the composition are so disposed as to produce the effect of buttresses, the church taking a cruciform shape between them, and above rises the great tower-shaped mass of the building, eighty storeys in height. The windows in this tower slightly recessed in vertical channels would evidently add rather than detract from the effect of the whole producing a quality of texture, and nothing could be better than the design of the terminal features of the design. Mr. Goodhue has proved to the hilt that it is possible to design an immensely tall building instinct with beauty, but in so doing he has shown exactly the difficulties of the problem of the skyscraper in its position in civic architecture. For one such building towering over all others in an immense city would add to its beauties, but several of them in a limited area would tend to destroy all sense of scale in any city. To built an immense tower which serves no other purpose would be impossibly costly. What Mr. Goodhue has done is to show how utilitarian needs could be utilised in the creation of the greatest tower imagined by man. We hope at some subsequent date to be able to give scale drawings of this great exercise of creative ability.

PORT OF LONDON BUILDING, TRINITY SQUARE, LONDON—AS SEEN FROM THE GARDENS. EDWIN COOPER, F.R.I.B.A., Architect.

We give an illustration of the very fine central feature of the Port of London's new offices as seen from the garden in Trinity Square. As will be seen, the foliage in the gardens entirely obliterates the lower portion of the main façade, and we give two plans, one showing the gardens as they exist, and another being a suggestion of a reasonable rearrangement which would allow of a central avenue leading up to the offices without reducing the area given up to the gardens, and, in fact, slightly increasing it. The irregular oval of the present boundary is central with nothing else, and as the open space at this point is wholly irregular, we suggest that it would be better to adhere to the general alignment of the boundary streets, leaving a broad belt from north-west to south-east free from trees, so that a good view can be obtained of the Port Buildings, which are, we consider, the finest public buildings erected in this country within the last half-century. As will be seen, the suggestion made increases the area which can be given up to grass and trees, while the site of the historic scaffold with which so much history is connected is retained within the gardens. If we have any feeling for fine architecture, this or some other plan on similar lines will be carried out; if not, there is little use in saying we have any feeling for art, as by our acts we shall show we have none.





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Notes and Comments.

The Neglect of Architecture.

The "Manchester Guardian," referring to Mr. W. J. Locke's introduction to Mr. L. Cope Cornford's book on the Institute, states with some reason that if architecture has been neglected by those who write it is authors rather than newspaper writers who are to blame. As far as the "Manchester Guardian" is concerned the criticism is amply justified, for very few weeks pass without some criticism being made about some building or other. We are also constantly reminded by the "Guardian" of our shortcomings, while it propounds queries such as asking the technical Press why we do not criticise current architects. When we reply it is true the "Guardian" passes over our replies unnoticed, but this is a detail. We presume the reason authors do not more frequently discuss architecture and architects is, firstly, because they know little about the former; and, secondly, because architects are more frequently saints than sinners, and the sinner has always been the favoured character of the fiction writer. It is also curious that when an architect forsakes the pencil for the pen he rapidly loses sight of realities, as is evidenced by the architect and the architect's assistant introduced by Thomas Hardy into his book "A Modern Laodicean," in which imagination rather than fact has inspired the author.

The Hardship of Double-Barrelled Competitions

We cannot see why the profession should be put to the immense labour and trouble involved in taking part in what are called double-barrelled competitions. Take the case of the competition for the Cairo Hospital, the preliminary competition for which has recently been decided. A perfectly appalling amount of work was asked for in the conditions, and it must be quite clear to any assessor that some of the authors of the designs submitted in the first competition cannot by any chance be successful in the final issue. Why in the name of all that is reasonable should they be asked to devote months of work to elaborating designs without any ultimate chance of selection? We do not believe that promoters ask for these things; they are simply tasks set us by members of our own profession, who must know all the facts we have stated. There is always also the possibility of leakages of information in the interval between the two competitions—leakages which may militate against the best man's chance; and there is the uneasy feeling well known to competitors that in introducing what they feel to be improvements they may be wandering away from safety. We cannot think why our profession tolerates a system the inherent faults of which are obvious.

The Modern Shop Front.

Several of our contemporaries have devoted space to the modern shop front, which may be defined as an awkward and unnecessary gap in a façade, the filling in of which defies architectural skill. The modern shop front should be dealt with by public authorities, just as they would deal with individuals who were insufficiently dressed in public places. As convention insists on a certain amount of covering for individuals, so should civic conventions insist on a certain proportion of apparent support for the superstructure of a building, together with a fixed height for the soffit over the shop front. The old eighteenth-century shop was an enlarged window of the room behind which a craftsman plied his business; the modern shop front has become an enlarged showcase. It is useless to argue that this is necessary either for the shopkeeper or the community he serves, and in addition the present system is a tremendous tax on the smaller men who cannot afford to indulge in the constructional acrobatic feats which are possible to the larger and wealthier shopkeeper. Why should we laud modesty in individuals and encourage brazen display in our civic buildings? If anyone thinks we are wrong in our views we should like to hear from them, as we regard the present situation as being an impossible one for those who think that dignity in building is worth struggling for.

Mr. Malcolm Stark Again.

Mr. Malcolm Stark is always interesting in his audacity. After saying that houses of the parlour type, which recently cost £1,000, can now be built for £650, he goes on to say "we are up against the rings. The moment house building becomes more active up will go the price of material." This is possibly true, and we should all be glad if it were not so, and would support any reasonable plan for keeping prices down. Mr. Malcolm Stark goes on to suggest his remedy, and here the humour comes in. The Government should go into brickmaking and the manufacture of other materials needed. So far, so good; though it may be questioned whether Government-made materials would be cheap. But, though the Government should own the brickfields, the amazing suggestion is made that the Guild should undertake their management! "We don't care two pins," says Mr. Stark, "about ownership provided we have control. This is what you might call a new form of nationalisation." Now most of us think it an axiom that with ownership should be coupled the power of control, and the question Mr. Stark has to answer is what is the inducement for any country, any men, or any man to own what others control. There would be little satisfaction in being a millionaire if a man's money was to be spent by others without his leave. Are the audiences who listen to such preposterous nonsense children or men? If the latter, we question whether free education has really done much for mankind!

American Architecture.

The "American Architect," in commenting on our criticism of the R.I.B.A. Exhibition, says that our statement as to atmosphere in America is only true as to certain localities, and that the climate is as varied as that of Europe. This criticism is true, but does not cover what we said. England cannot be described as having a European climate. From the Urals westward the greater part of Europe may be described as being a great plain, where conditions as to climate do approximate to those of the Great American plain east of the Rockies, and where conditions are less variable than those in our water-surrounded islands. Most parts of America east of the Rockies have a winter of intense cold and a summer of great heat and a clear, bright atmosphere. West of the Rockies the whole Pacific slope has its wet and dry seasons more constant than anything we know here, and, as photographs of American buildings clearly show, America has generally a brighter, clearer atmosphere than any we are accustomed to here. For this reason we think we are right in saying that the generally more pronounced classic character of American buildings is natural and fitting, and the character of our post-Gothic architecture, which may be described as classicism modified to suit the requirements of a heavier and more humid atmosphere, is reasonably explained. In our view both are unconsciously governed by climatic conditions, and each is right and proper in its place.

With regard to the draft regulations under Section 79 of the Factory and Workshop Act, 1901, for the use of woodworking machinery, which were issued on the recommendation of the Joint Industrial Council for the Building Trade on September 3, 1920, the Home Secretary announces that, having considered the representations and objections submitted by or on behalf of the employers, he is prepared to make considerable modifications. Revised regulations were issued last week which, it is thought, should go far to meet all the difficulties of substance which have been raised, and the Home Secretary hopes that they will now be accepted by all concerned, and that the necessity for a formal inquiry will be avoided. Copies of the proposed regulations may be obtained at the Factory Department, Home Office, London, S.W. 1.

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London Art Galleries.

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Last week was an exceptionally busy one for the London galleries, which seemed to spring into new life and activity after the Christmas vacation. On Wednesday, January 4, the Pastel Society opened its twenty-third exhibition at the Royal Institute Galleries, and on the same day at the Goupil Gallery an interesting display of clever camera work by E. O. Hoppé made its appearance. On Thursday, the 5th, the Minister of Poland opened at McLean's Galleries in the Haymarket an exhibition of sculpture by Henry Kuna and architectural drawings by Professor S. Noakowski. On Friday, January 7, the Society of Graphic Art opened its second annual exhibition at the Suffolk Street Galleries; and on the day following, the 8th, Messrs. Goupil had arranged the opening of an interesting collection of drawings of five centuries, from 1450 to 1921, while the same day saw the private view at Burlington House of the exhibition of works by deceased members of the Royal Academy of Arts.

In such an ample—almost more than ample—display of material for the conscientious critic I may find myself obliged to condense my notes in some cases in order to have any chance of covering the ground; and I commence, in order of time, with the Pastel Society, with which it is to be noted that the Pencil Society is now incorporated. It would be a pity if this excellent little Society should be in any way swamped by the attraction of colour work, and, at any rate this year, its members hold their own very fairly in the clever figure work of G. L. Stampa ("A Study," "The Pool in the Wood"), in the delightfully clean and finished architectural drawings of Hanslip Fletcher ("Eton," "The Constable's Chapel, Burgos") carried just far enough without over-accentuation, and in the work of Frank Gillett, R.I., H. R. Millar, Francis Bedford ("The Inquisitive Beech") and Cecil King. All the above is pencil work, although I am not aware whether all the artists just mentioned, or again Mrs. Anning Bell in her pencil portraits ("Walter George Bell"), or Lewis Baumer, R.I., in his dainty figure studies ("Columbine," "The Model")—were members of the now defunct, or incorporated, Society. In the large room (South Gallery) the landscape work in pastel of J. Littlejohns, R.B.A., Leonard Richmond, R.O.I., Davis Richter, R.I., with which I should add that of Stefani Fisher, stands out prominently. I have for some time urged the claims of pastel for landscape work; and in this exhibition it receives full recognition in these brilliant studies of Littlejohns; with their fine atmospheric effects and dominant note of purple, a colour note which appears too with vivid greens in Leonard Richmond's "Breaking Clouds," and in the work here of H. Davis Richter, who has gone to France for his subjects, of H. Butler ("The Bend in the River"), Reginald Wilkinson ("Chartres") and Stefani Fisher.

In figure work Bernard Partridge and Henry J. Ford ("The Soul's Release") are to be noted: a brilliant piece of work is sent by Anna Airy as a "Working Sketch—a Bather," and animal life appears to good effect in Arthur Wardle's studies of lions, and the six drawings sent by J. A. Shepherd, including a cleverly-drawn "Hussar Monkey," foxes, and Egyptian donkey, and different birds.

At Burlington House this week has been opened the Winter exhibition of the Royal Academy of Arts, which takes this year the form of an exhibition of the work of recently deceased members of the Academy. Critically it is interesting, as showing something of the main tendencies which affected British art during the twenty-five years preceding 1921, the date of Mr. W. R. Colton's death; and this is also an exhibition which will surely attract the London public, and bring back to its older members many pictures which they have known. In the early portrait work of Sant we find the influence of Etty; and another point of interest is that of the conservation of the paint. It was pointed out to me yesterday by the editor of one of our leading art reviews that Sant's work has stood the test of time very fairly, and the same may be said of Sir E. J. Poynter, Briton Riviere, and Peter Graham: on the other hand, some of Charles Furse's portraits, though not so long ago in date, are darkening, and it has been pointed out that even Sir Alfred East's landscapes are affected, and Edward Stott's idyllic scenes of English country life losing something of their surface vitality.

Two artists whose loss has been comparatively a recent one come forward very fully in this exhibition. Edward Stott is represented with no less than thirteen paintings, some of these, such as "The River Bank," lent by Manchester, "The Kiss," and "Folding-Time" being delightful creations; the late William Strang has here his remarkable self-portrait, which was purchased under the Chantrey bequest, his scarcely less remarkable portrait of Lucien Pisarro, and his "Laughter," besides other works, and a fine selection of etchings, which occupy the entire end wall of one of the South Rooms. In my judgment, the late C. Napier Hemy stands out here as one of the finest marine painters of our time: his "Porpoise Chasing Mackerel" and his "Pilchards," exhibited in 1897, and purchased for the Chantrey Bequest, are exhilarating in their sense of atmosphere and motion. On the other hand, it may be questioned whether the Venetians of Mr. Henry Woods' paintings are not a sentimental rendering, with very little hold on reality: the Venetian "Popolana" is a creature apart, wearing her black shawl with the charm and dignity of race and tradition, but I fail to recognise her counterpart in the twelve paintings on these walls.

Sir Edward Poynter comes before us here as a really great draughtsman of the human figure. Interesting but not satisfying is his early work of "Israel in Egypt," exhibited with success in 1867; where he is far better is in "The Catapult," exhibiting all his power of drawing in the Roman soldiers, and shown in 1868; but he reaches his highest inspiration from classic art in the reposeful harmony of "The Visit to Æsculapius" and the fine drawing in the nude figures of Venus' attendants. The figure art of J. W. Waterhouse was no less inspired by Greece, but possessing more charm and less technical power than the work of the late President; he reaches his highest level in the beautiful "St. Cecilia" of Gallery III., while another figure painter, Arthur Hacker, finds inspiration from Shelley in his figure of "The Cloud," bathed in golden vaporous light.

A worthy example of the landscape art of the late Sir Alfred East is his "Rainbow, Lelant," and from the same corner of our Cornish coast he took his no less fine "Hayle from Lelant," with its luminous atmosphere. In the sculpture we find Harry Bates in his panels from Virgil and the "Story of Psyche," Onslow in his figures of "Peace" and the recumbent "Snowdrift," and the late W. R. Colton in his group of "The Springtide of Life," though I consider this fine sculptor might have been more fully shown.

I am obliged to treat more briefly than I could wish the Graphic Art Society's exhibition opened on the same day as the Royal Academy. The President, Mr. Frank Brangwyn, sends this year, besides other works, a study of the "Pont Neuf, Paris," magnificent in its massing of light and shade, which recalls some of the creations of the Italian Piranesi. Near this Miss Edith Hope, who, I believe, was this master's pupil, has a fine study of the "Cathedral, Laon," which holds its own, even beside the work just mentioned. A head of great charm in this room is the "Beatrice" by Dorothy Landau da Fano, who has also a good silverpoint likeness of Mr. Frank Emanuel, Vice-President of this Society.

S. B.

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Modern Methods in Building Construction.—I.

By Albert Lakeman, M.S.A., M.C.I.

Introduction.—Considerable developments have taken place in all classes of building work during recent years, both as regards the materials employed and the type of machinery and plant installed during the execution of the scheme, and the designer or constructor will find little guidance in the text-books of yesterday when considering the methods of to-day. Several causes have contributed to these developments, and among the principal ones can be reckoned the introduction and extensive application of reinforced concrete as a constructional material, the Great War, which taxed all our resources and inventive capacities to the utmost, the increasing tendency to employ specialists and patent systems for the various parts of a structure, the need of reducing labour costs by the adoption of all suitable appliances, and the inevitable development which must follow as the result of progress and research in any important industry.

The cost of building is still very high as compared with pre-War cost, although there has been a decline in labour and material rates, and it is therefore necessary to carefully consider all the possibilities of the materials and methods that can now be utilised in any large scheme if the most satisfactory results are to be obtained.

The architect and engineer must be conversant with the best materials and methods of construction if he is to take full advantage of modern developments for the benefit of his clients, and the contractor must employ modern appliances if he desires to enter into successful competition and make a fair profit while executing good work. It is therefore of primary importance to those connected with the design and execution of buildings to keep up to date; and it is the purpose of these articles to present a description and analysis of new methods wherein good construction, speed, and economy are primary factors. In order to provide a sequence to the articles and deal with the matter in a practical form, as distinct from a merely abstruse theory on construction, it is proposed to take as an example an ordinary site in a large city whereon an important building is to be erected, and describe the means by which the scheme can be executed to give an economical and sound structure in the shortest possible time.

Good organisation is obviously essential to the success of any large building scheme, but a comprehensive treatise on this aspect would require an analysis of the different branches of a contractor's business, with its various departments, and such a treatise is hardly within the scope of the present articles.

Generally speaking, however, it may be stated that there should be no divided responsibility on the site itself, and the whole work should be under the control of one man, who is directly answerable to the management of the contracting firm. All necessary assistance should, of course, be supplied to this responsible party, but he should have full power to direct all the operations and carry out the scheme as a whole.

The control of the designing and supervision should likewise be vested in one party on behalf of the clients and architect, and by a close co-operation between the two responsible parties it will be possible to produce the best results, provided they possess the skill and experience that is implied by their selection for the work.

In dealing with the general lay-out, both during construction and for the completed building, serious consideration must be given to any natural advantages that may exist in order to develop these to the fullest extent; and in this respect each building scheme will be found to present fresh problems, thus providing ample scope for the skilful application of modern methods and materials. The cost and procedure in connection with any large building scheme will also be materially affected by the facilities available at the commencement of the work; such as the proximity of railways and suitable roads, the supply of water and power available, the labour conditions, and the transport available for workers, and the general lay-out of the contractor's plant will be governed by these factors, in addition to the type of structure to be erected and the available working space.

These general introductory notes should be sufficient to indicate the difficulty of laying down hard and fast rules in connection with the successful development of any building scheme, and also how comparisons of cost and speed may be misleading unless due consideration is given to the circumstances obtaining to any particular job. The science of building will, however, always call for considerable skill and discretion on the part of those controlling and directing the various operations, and a description of modern methods and materials must be considered as a guide to possibilities and opportunities rather than as a positive statement of the system that must be adopted under any circumstances.

Preparation of Site.—Under the heading of preparation work can be classified all those items which are separate and distinct from the actual excavation work which is the first stage in the execution of the building proper. Such items will include erection of hoardings and gantries, the provision of temporary offices, mess-rooms, and stores, pulling down existing buildings, and generally clearing the site, and the installation of temporary water and power lines. The clearing of the site may be a simple matter, such as the removal of rubbish, trees, and any small obstructions, or it may involve the demolition of a large block of existing buildings. If the latter is the case, the work should preferably be let to a reputable firm of house-wreckers, as such work involves some risk, and it will not pay the ordinary building contractor to undertake this himself. Effective projecting fan screens should be provided to prevent débris falling into the public way, in addition to a close-boarded hoarding, and the provision of water sprays will be useful in keeping down the dust in dry weather. Sufficient facilities for loading-up and removing the débris quickly are also obviously necessary, and if the buildings to be demolished cover a large portion of the site, the installation of temporary offices, stores, or general plant cannot be commenced until the demolition is completed. This time, however, can profitably be employed by the contractor in planning the lay-out of his equipment, and it will always be found profitable to give thorough consideration to this, and, in fact, to prepare a detailed plan indicating the position of all stationary items. The temporary buildings for offices, stores, and mess-rooms must be placed in positions, which are convenient and at the same time clear of work which will involve their removal in the early stages of the scheme, as such removal means unnecessary expense and temporary disorganisation. The stores required for stocks of cement, tools, and fittings of all kinds which have to be protected and kept under control must be placed in a position which will enable supplies to be received with the minimum amount of handling, and easy access for motor-lorries or steam-wagons is essential. In the case of a site in a large city, direct railway communication will seldom be possible, but when this is available it will be profitable to lay temporary standard-gauge tracks to serve the stores and as much of the site as convenient. A complete circuit or loop, which will permit the off-loading of steel, bricks, and all bulky materials at different points close to their required position in the work will result in considerable saving of time and labour. The cement stores must also be conveniently placed in relation to the concrete mixers that will be required, and, in fact, it is essential to study the preparation work on the site and the general lay-out of the equipment in relation to the whole of the main operations for the complete scheme, as the success of these operations will depend largely on the foresight displayed in the early stages of the work Some typical lay-outs of the equipment could be given, but these would be of little use, as the conditions will vary with each scheme, and the lay-out must obviously be governed by such conditions when considering even the main features of the general arrangement.

Excavation.—There are now many methods of excavation by mechanical means, and ordinary hand labour, while suitable for some small sections of the work, will

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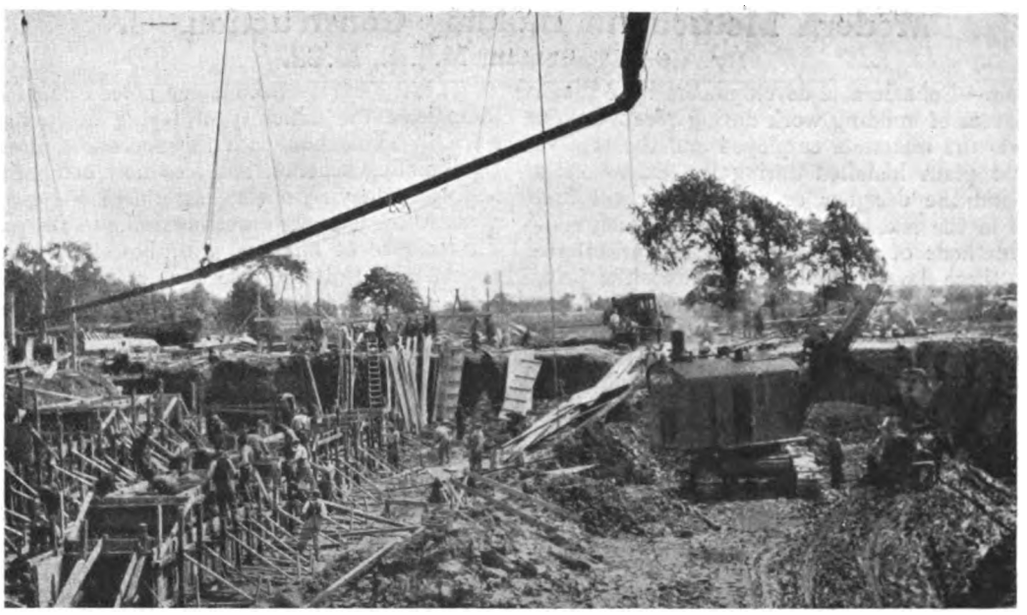


FIG. 1.—A STEAM SHOVEL AT WORK.

not prove economical or expeditious for the removal of any large quantity of soil. The first essential of any excavating method is that of reducing the handling of the soil, after its removal, to the minimum, or, in other words, the appliance which removes the soil must be capable of operating over sufficient radius to deposit same directly into the transporting medium. As an example, it is not possible to excavate a cutting by hand and load direct into wagons for removal, and thus another handling is necessary, or some mechanical lifting device has to be provided to supplement the hand labour; and the introduction of two factors is invariably more expensive than one, whereas with a steam shovel or similar appliance the soil can be removed and deposited by the excavator directly into a wagon or truck. This may appear to be an elementary deduction, but it is, nevertheless, an important one. There are several types of equipment that can be profitably employed for excavating work, the principal of which are the following: Steam shovels, trench diggers, grab buckets, scrapers, conveyors, derricks and cranes, and drag-line excavators.

Steam Shovels.—The steam shovel is a very important piece of equipment, and can be considered a necessity for the removal of any large quantity of soil such as will be required when excavating for a basement or lower ground floor, or a large pit of any kind.

A typical example of a steam shovel at work is illustrated in fig. 1, which is a photograph at one point of a large scheme in progress where the use of this piece of equipment resulted in a saving of over 75 per cent. of the cost of excavation as compared with the use of hand labour, after allowance for depreciation, repairs, and interest on capital, and the amount of soil removed per day was as much as 600 yards cube. The work in this case was difficult, as the soil was a stiff clay, but the output was good when considered in relation to the capacity of the bucket on the shovel, which was only ¾ cubic yard.

Some doubt may arise as to the wisdom of providing a steam shovel to do the excavation for a large building contract if it necessitates the purchase of a new piece of plant, which will possibly be standing idle for some time when the excavation for this particular contract is completed, but a few conservative figures will indicate whether this doubt is justified. The headings under which the question should be dealt with will be as follows: (*a*) Saving in labour, (*b*) comparative cost, (*c*) saving in time. The saving in labour can be quickly dealt with approximately, as the output of a steam shovel can be based on actual experience, and if this is taken as 600 yards cube per day of eight hours the hourly output will be 75 yards cube, this including the digging of the soil and the placing into wagons or trucks for disposal. The output of the average labourer, excavating by hand and loading into skips or wagons, cannot be taken as more than one-half yard cube per hour, and it will, therefore, require 150 men to give the same output as the shovel. A steam shovel requires at the maximum the services of five men, and the saving in labour is, therefore, 145 men by the use of one shovel. This is an important consideration when labour rates are comparatively high and costs have to be kept down to the minimum.

When dealing with comparative costs the writer is treading on dangerous ground, owing to the difficulty of getting reliable *actual* costs that are above suspicion and will be accepted by all parties. Despite this fact, however, figures can be given which show a very large saving in cost by the use of a steam shovel, even if the advocate of hand labour does not agree to the extent of 50 per cent. or more with the values quoted. The cost of excavating by hand and throwing into a wagon or skip certainly cannot be taken at less than 3s. per yard cube when the labour rate is 1s. 7½d. per hour, and there is no doubt that the majority of contractors would be pleased to get the work executed at this price.

Assuming that the work can be done, however, by hand at 3s. per yard cube, a comparison can be made with a conservative estimate for steam-shovel work. The cost and output for these machines, as put forward by the different makers, will be found to vary slightly, but the cost per yard cube will bear a close relation to one another. As a typical example, Messrs. Whitakers (Engineers), Ltd., of Horsforth, in dealing with the output of their standard No. 19 steam crane excavator, claim that with a bucket capacity of 1½ cubic yards a good driver, in favourable soil, should reach an output of 120 cubic yards per hour, not considering delays. Taking delays into consideration, however, the excavator is digging from four to eight hours per day, and the output is from 500 to 1,000 cubic yards. The daily working costs, as given by this firm, taken on an average, are as follows:—

	£ s. d.	£ s. d.
Materials—		
Coal consumption, say ·6 ton at 50/- ...	1 10 0	
Water, 1,000 gallons	0 1 6	
Oil stores and sundries	0 5 0	
		1 16 6
Labour—		
1 fireman at 1/6 per hour for 11 hours ...	0 16 6	
1 driver at 2/- per hour for 11 hours ...	1 2 0	
3 labourers round machine for 10 hours at 1/9	2 12 6	
		4 11 0
An allowance of 1 hour is made for driver and fireman for getting up steam, &c.		
Financial—		
8 per cent. interest, 8 per cent. depreciation and 10 per cent. upkeep equals 26 per cent. on first cost of £2,000, which equals £520 per annum. Assuming 200 working days per year the cost per day equals		2 12 0
Total cost per day		£8 19 6

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If the output is 750 yards cube per day the cost per yard is 2.8 pence, or roughly 3 pence. If the output is reduced to the previous figure of 600 yards cube per day the cost is 3.59 pence per yard. It will be noticed that 200 working days per year only were taken under the financial heading, this making allowance for week-ends, bad weather, repairs, and any unforeseen circumstances that may arise. If a further margin is allowed and the cost is increased to 6d. per yard cube this will still show a saving of 2s. 6d. per yard over that allowed for excavation by hand.

As a further comparison the claims of Messrs. Wm. Muirhead, Macdonald, Wilson & Co., Ltd., of Barkingside, concessionaires for the "Erie" type of shovel, can be considered. Taking the "B" class of "Erie" shovel, which has a bucket or "dipper" capacity of ¾ cubic yard, it is claimed that the output per day of ten hours may reach as much as 800 yards cube, but taking the average output as 500 yards cube, the cost works out as follows, on the assumption that the shovel will be actually employed only one-half of its time, say, 26 weeks at 5½ days per week equals 143 days:—

	£	s.	d.
Daily interest on capital of £2,490 at 6 per cent. =	1	1	0
Daily depreciation, say, at 10 per cent. =	1	15	0
Oil, &c.	0	5	0
Coal	1	0	0
Wages for two men	1	15	0
Total daily cost	£5	16	0

On an output of 500 yards cube the cost per yard will be 2.8 pence only.

These figures should be sufficient to convince the most conservative person that an estimated saving of 2s. 6d. per yard cube over the cost of hand labour is fully justified. Furthermore, with regard to the question of capital being tied up in a piece of plant which may not be generally in use, it will be seen that, if we assume a capital outlay of £3,000 for the shovel and incidental expenses in connection with the purchase of same, when the machine has excavated 24,000 yards cube at a saving of 2s. 6d. per yard over hand labour, this outlay will have been recovered and it can be written off the books. This amount of 24,000 yards cube is not very formidable when it represents less than fifty working days at an output of 500 yards cube per day! A basement floor for a large public building or large business premises 240 feet by 240 feet and 12 feet deep will be sufficient to give the additional profit to pay for such a machine outright.

The third question of the saving of time is one which will be dependent to a large extent on the conditions under which any particular piece of excavation has to be executed. If the space is confined as, for example, in the case of a cutting about 30 feet wide, the shovel will be able to work conveniently to give the maximum output of, say, 600 yards per day, whereas it would be impossible to work 150 men at one time in this space without sinking the cutting down from the top, and it will be clear that the following up of other trades will be affected. The shovel can excavate to the required depth at one end, and immediately it has progressed a reasonable distance concreting or other operations can be commenced and can follow along in the wake of the shovel to provide a regular sequence, whereas by hand labour the cutting must either go slowly by progression from one end to provide sequence or be sunk from the top by a large force of men spread over a considerable area, and it will be a comparatively long time before any part of the cutting is completely excavated. The saving of time and expense in the removal of the excavated soil will also be apparent as the wagons, skips, or trucks have to wait at the point of filling for some time when filled by hand labour, whereas with a steam shovel a full load can be given almost immediately. It will be noticed that the comparisons are made in each instance with hand labour, and this is done because hand labour is the recognised old-fashioned method, whereas the steam shovel is essentially a modern method. It is surprising to find that many contractors to-day are still endeavouring to carry out quite large excavations by the use of hand labour only, and the possibilities of using profitable modern equipment does not appear to enter into their calculations.

An added advantage of the steam shovel is the fact that it can readily be converted into a crane and profitably used, when all the excavation work is completed, before it leaves the site by raising heavy materials for unloading or similar purposes

Other advantages of the shovel are that it can travel to the job under its own power if the distance is reasonable, the wagons and trucks can be loaded at a high level if the high-lift equipment is used, and it can travel over soft ground. A small-size shovel can operate in a limited space, the ground space occupied being scarcely more than a 10-ft. radius, and thus basements of comparatively small area can be excavated.

Having dealt with the possibilities of this particular type of equipment, it may be useful to give some information as to the machines available. It must be understood that the writer does not recommend any special make of steam shovel, but is willing to present some of the information supplied by makers of well-known machines as a guide to the industry generally, and in the hope that intending purchasers will find same useful when considering the acquisition of this piece of equipment.

Messrs. John H. Wilson & Co., Ltd., of Birkenhead, supply five sizes of shovel known as Wilson's steam-crane "Jubilee" excavator, and they claim that their machines will give the largest output of any excavator or steam navvy on the market with the lowest coal consumption and cost of maintenance. The two principal sizes are the 30-ton standard pattern, having a 1½ cubic yard bucket, and the 45-ton standard, with a 2½ cubic yard bucket.

The smaller machine (Fig. 2) is claimed to have an output of 600 to 1,000 yards cube per day, and its lifting capacity as a crane is 8 tons at 16 feet radius.

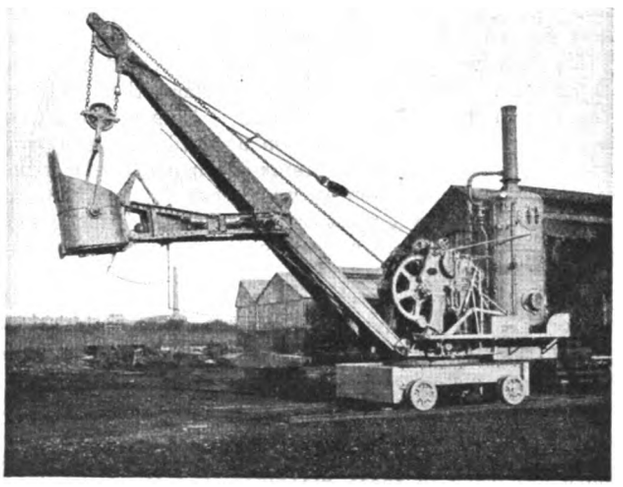


FIG. 2.—WILSON STEAM CRANE "JUBILEE" EXCAVATOR.

The larger machine, which has been used on Great Western Railway contracts and Liverpool Docks, is claimed to have an output of 1,000 to 1,400 cubic yards per day of ten hours, and its lifting capacity as a crane is 15 tons at 16 feet radius.

These machines can revolve an entire circle, and this is a distinct advantage for delivering the excavated material at any point. It is claimed that the 45-ton machine will work a clear 22-foot face, will drive a gullet 54 feet wide, and as each advance is made it may be travelled forward in thirty seconds.

It is also stated that this machine has actually excavated and filled 480 4½-yard wagons in eleven hours in hard gravel, which must be considered an excellent output.

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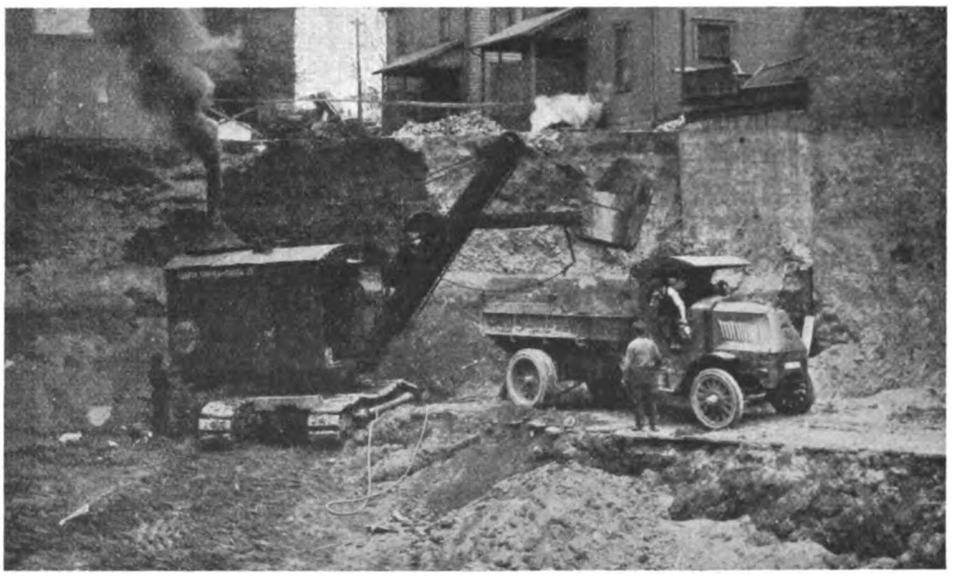


FIG. 3.—SMALL SIZE "MARION", SHOVEL.

The excavator gear can be disconnected in a few minutes, and the machine can then be used as an ordinary locomotive crane. Eight wheels are fitted to allow for travelling on standard or broad-gauge tracks, An illustration of a 30-ton excavator is shown in fig. 2.

A well-known type of shovel, particularly in America, is the "Marion," and the British agents, Messrs. S. Thornely, Mott & Vines, Ltd., of Westminster, claim that over 3,000 machines of different types have been turned out by the Marion Co. in a period of thirty years. The small shovels are made in three sizes, with ¾, 1, and 1½ cubic-yard buckets, or dippers, while the railroad type is built in sizes ranging from 1½ to 8 cubic yards.

The hourly output of the small shovels is claimed to be from 30 to 120 cubic yards, and the large machines are capable of excavating from 60 to 550 cubic yards per hour, and it is claimed that these are conservative figures. A new special type of machine produced by this firm is a petrol electric shovel operated by three independent motors for all the operations, these motors being driven by a petrol generator. It is claimed that the cost of operation is low, on account of the saving in fuel and water, and no fireman is necessary, but the writer has no actual figures which can be put forward for comparison, and it must not be overlooked that petrol is considerably higher in cost in this country as compared with America.

The small revolving shovels are all arranged so that additional parts can be fitted to any machine to allow it to be readily converted into a clam-shell or drag-line excavator, crane, or pile driver, and this is a distinct advantage to the contractor called upon to do different classes of work on one contract. Broad-rimmed wheels, flanged wheels for railway tracks, or crawling traction trucks are fitted to these machines, but the latter type is recommended for general work, as by their use there is no necessity for any track device, planking, or mats, and inclines can be climbed and obstructions passed over without difficulty. Also soft ground can be negotiated without danger of the machine being stuck fast, as by a system of auxiliary bearing-rollers the entire bottom surface of each tread uniformly supports the weight.

Fig. 3 illustrates a small size "Marion" shovel on crawling traction trucks excavating for the basement of a building, and the small working space required can be realised.

Another well-known American-made steam shovel is the "Erie," of which the concessionaires in this country are Messrs. Wm. Muirhead, Macdonald, Wilson & Co., Ltd., of Barkingside, and it is claimed that the "B" type, having a bucket with a capacity of ¾ cubic yard, will excavate 800 cubic yards per day of ten hours when working in a fairly soft soil.

It is interesting to note that one of these machines, which was on view at the recent Roads and Transport Exhibition, is claimed to have performed the following work: Excavated and loaded into wagons over 100,000 cubic yards from a cutting, averaging 450 cubic yards per day of nine hours. It has also dug approximately two miles of deep trench, and been engaged on a considerable stretch of road and street grading. It travelled seven miles over all sorts of roads, and arrived at the Exhibition under its own power. It was lent by the contractor for the Exhibition only, and from there was proceeding to the next job, which consisted of the removal of about one million cubic yards of overburden from a coal seam. As the approximate cost of this piece of equipment at the present time is £2,500, delivered in London, it can be considered a profitable investment. The Standard "Erie" Shovel is supplied with road wheels, but caterpillar tread or railway-track wheels can be selected, as they are all interchangeable on the same truck frame. The type "A" shovel has a dipper of ½-yard capacity, and it is rated to have an output of 30 to 40 cubic yards per hour under ordinary conditions. It is claimed that with caterpillar wheels both types of shovel will climb grades as steep as 30 per cent., while on road wheels type "B" will climb a grade of over 20 per cent. under its own power, and type "A" a grade of 25 per cent.

The machines can be converted into cranes, drag-line excavators, or pile drivers by the use of the various combinations that can be adapted to the standard shovel,

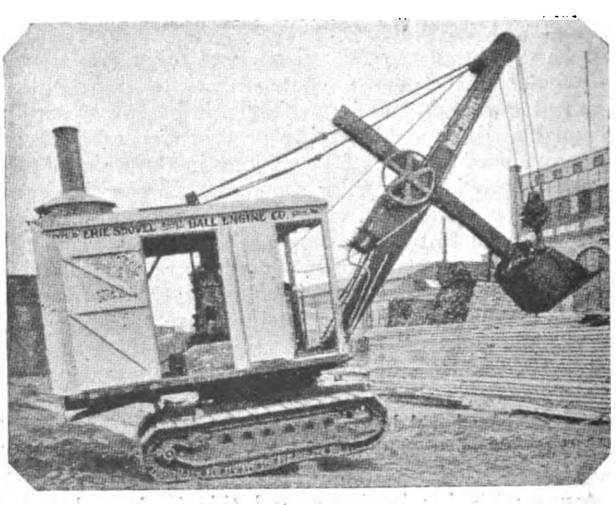


FIG. 4.—THE "ERIE" SHOVEL.

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and the automatic crowding device allows the machines to be employed for grading work and dig a floor bottom at any required level, a shallow cut of only 10 inches deep being possible. The illustration in fig. 4 shows a type "B" Erie shovel with caterpillar tread walking right over a 10-in. by 12-in. timber, and this indicates the ability of a steam shovel to overcome obstructions when fitted with the right kind of wheels.

While dealing with American-made shovels, mention should also be made of the "Osgood," a well-known make, the agents for which are Messrs. Millar's Timber and Trading Co., Ltd., of Pinners Hall, London. These machines can be obtained in sizes varying from the Standard Osgood 18, having a bucket of ¾ cubic yard capacity, and capable of an output of 30 to 80 cubic yards per hour, to the Osgood 120, which has a bucket capacity of 6 cubic yards and an output of 240 to 570 cubic yards per hour. The working weight of the last-mentioned machine is 266,000 lb., and it will be realised that this is built for very large projects only.

This firm also make special compressed air shovels, with bucket capacities of ¾ and 1½ cubic yards, for underground work. Like other makes of shovels, these machines can be converted into cranes, drag-line or clam-shell excavators.

The Standard No. 19 steam crane excavator, made by Messrs. Whitakers (Engineers), Ltd., of Horsforth, was one of the types taken in the previous notes to illustrate the working costs of this class of equipment, and some particulars of the machine are therefore given here. The weight of the excavator in working order is approximately 31 tons, this including 8½ tons of ballast, which is supplied by the purchaser at the destination, special mild steel boxes being fitted to the machine to receive same. The maximum pull exerted on the bucket is 12 tons, and it is claimed that the excavator is capable of a complete cycle of operations—viz., hoisting, slewing through 90 degrees, emptying bucket over wagon, slewing back to position, and lowering the bucket again for the commencement of the next cut, in from 45 to 60 seconds. Two sets of wheels are provided on each axle, the inside pair being set at 4 ft. 8½ in. gauge and the outside pair at 8 ft. centres. When used as a crane it will lift 10 tons at a radius of 15 feet. The maximum width of cutting is 48 feet at a level of 9 feet above rail, and the maximum height of face which the bucket will cut through is 20 feet from formation, while the maximum tipping height under bucket door when open is 13 feet above rail level.

Messrs. Whitakers (Engineers), Ltd., also make a distinctive type of petrol-driven tractor excavator, which is illustrated in fig. 5. The approximate total weight of the machine is six tons, and it has a speed of 150 to 200 feet per minute on top gear. The operations of the excavator are all controlled by one man, who drives the machine when seated, and it is claimed that the petrol consumption is only three-quarters to one gallon per hour, while the output is from 100 to 300 tons per day, depending on the nature of the material. The bucket, which has a capacity of one cubic yard, travels on flanged runners, and the power is applied through the operating ropes, which run over segmental guides and under the bucket to equalise the pull. The bucket descends by gravity to the front of the machine, and as soon as the front runner has hit the buffer at the end and further rope is paid out, the bucket tips and the back runner rises through a gap in the top flanges of the channel guides, while an automatic check rises and locks the front runner between it and the buffer. The hoisting gear is then started, and the bucket rotates on the front-runner axle, thus making a filling stroke until the back runner depresses the automatic check with its flange and frees the bucket, which then ascends the runway until the back runners fall in the segmental guides at the end and allow the bucket to tip and discharge its contents through its open end. It is claimed that a cycle can be performed in one minute, and if a travel back of ten yards is required to tip the soil, the cycle can be performed in two minutes.

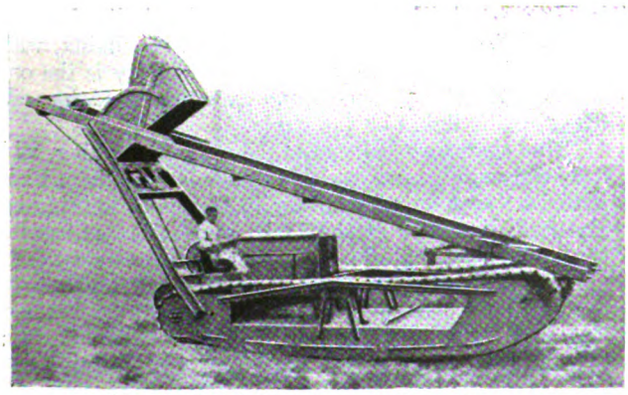


FIG. 5.—Petrol-driven Tractor Excavator.
By Messrs. Whitakers (Engineers) Ltd.

(To be continued.)

Competition News.

The following cablegram in connection with the Auckland War Memorial Competition has been received by the Secretary of the R.I.B.A. from the Mayor of Auckland: "Letter November 14 received. Advise competitors wait answers numerous questions in mail due London end of month.—Mayor."

Mr. Walter Cave, F.R.I.B.A., the assessor, has made the following award in the competition for designs for a war memorial to be erected in Prospect Square, Harrogate: 1, Messrs. Pretawick & Sons, architects, Lee, Lancashire; 2, Mr. Howcroft, architect, Upper Mill, Lancashire; 3, Mr. Norman Culley, architect, Huddersfield. The memorial designed by Messrs. Pretawick & Sons is in the form of an obelisk upwards of 70 ft. in height, which will be erected on a platform of raised steps, and at the base carry panels for the names of the fallen. Eighty-two designs were submitted.

Forthcoming Events.

Friday, January 13.—London Society.—Meeting at the Royal Society of Arts, Adelphi, W.C. Paper by Lady Cooper entitled "The Banks of the Thames." 4.30 p.m.

Monday, January 16.—Architectural Association.—Meeting at 34 and 35 Bedford Square, W.C. Paper by Professor Frank Hutchens (Sydney Conservatoire of Music) on "Building in Sound." Illustrated at the Piano. 8 p.m.

Tuesday, January 17.—Royal Institute of British Architects.—Practice Standing Committee confer with interested architects as to the proposed negotiations with the Ministry of Health upon a scale for abandoned work. 3 p.m.

Wednesday, January 18.—London Society.—Dinner at the Hôtel Cecil. The Japanese Ambassador will give his "Impressions of London." 7.45 p.m.

Thursday, January 19.—Edinburgh Architectural Association.—Meeting at College of Art, Lauriston Place. Lecture by Professor R. K. Hannay entitled "The Evolution of the Scottish Parliament and Court of Session." 7.30 p.m.

International College of Chromatics.—Meeting at Caxton Hall, Westminster. Lecture-Recital by Miss Louie Bagley on "Painters of Pictures in Sound." 8 p.m.

Friday, January 20.—Institution of Municipal and County Engineers. Meeting in the South-Western District at Plymouth (two days).

Mr. W. S. Weatherley (A.R.I.B.A., 1880; F., 1886), of Wandsworth Common and 13 Buckingham Street, Strand, died in a nursing home on January 3, aged seventy-one years.

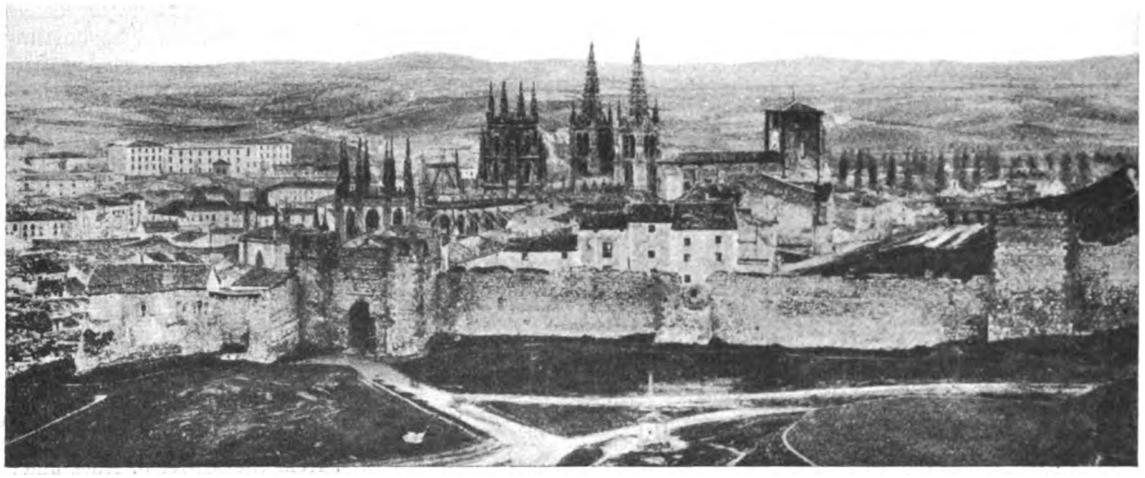
Mr. Edward Arthur Fellowes Prynne, whose death occurred recently, had acquired a considerable reputation, both in this county and on the Continent, as a versatile painter of religious subjects, including altar panels, stations of the cross, and church windows. On many occasions his work was executed for churches designed by his brother, Mr. George H. Fellowes Prynne, F.R.I.B.A. The last work that Mr. Prynne was engaged upon was the completion of the four last stations of a set that he had been painting for the Chapel of the Community of St. John the Evangelist, Oxford, and the last painting he touched was the Entombment of Christ.

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The Cathedral of Burgos.—I.

By Selwyn Brinton, M.A.

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GENERAL VIEW OF THE CITY OF BURGOS.

(*See Inset Illustration.*)

When the distinguished architect of the London Law Courts—whose work on "Gothic Architecture in Spain," written on journeys which were intended almost as a relaxation to a busy professional life, is still, after more than fifty years since its first publication, the best recognised book on the subject—entered the Peninsula on the first and third of these fruitful excursions, he took the route from Bayonne, viâ Biarritz—then visited (it seems now very ancient history!) by the Emperor and Empress of the French—and St. Jean de Luz; and crossed into Spain by the old bridge over the Bidassoa at Irun, where Fuenterabbia, with her grand old cathedral and castle of Charles V., seems still to guard the Spanish frontier seaward.

It was my good fortune, some four summers ago, to traverse identically the same route, a route as full of natural beauty as of architectural and historic interest: but I will not detain my reader—even as much as Street had done—over the Cathedral of Bayonne, with its lofty triforium, its grand clerestory and thirteenth-century choir, over the finely characteristic Spanish church of Irun, or over San Sebastian, Vittoria, or Miranda del Ebro, through which the direct line of railway southwards now passes, as did the old diligence road in the middle-nineteenth century. I shall come at once to Burgos, and devote myself in these two notices entirely to her marvellous Cathedral, which affords more than enough material to fill the space at my disposal; and I shall try here to trace out, following the admirable indications given by Mr. G. E. Street, the old fabric, the "substratum"—as he called it—of the thirteenth-century building, before going on to those later additions of the fourteenth, fifteenth, and sixteenth centuries, which have given the old Cathedral its present character of immeasurable richness and inventive fancy.

Structurally, of course, these additions are open to criticism, and are, not unnaturally, condemned by such an enthusiast for pure Gothic art as the late Mr. Street. "Never was a church more altered for the worse after its first creation than this. It is now a vast congeries of chapels and excrescences of every shape and every style, which have grown around it at various dates, and to a great extent concealed the whole of the original form and structure." But who—we may fairly reply—would wish to see Burgos Cathedral deprived of her two western steeples, with their perforated spires, of her marvellous lantern, or of the sumptuous splendour of her monumental Chapel of the Condestabile?

A glance at any plan of the great Cathedral will give a fair conception of the early church, which included, apparently, a nave with aisles of six bays, transepts, and choir with apse and radiating chapels grouped round the chevet. One of these chapels still remains in the north transept, but the others have disappeared, their place being in part taken by the two great chapels of the Condestabile and of Santiago. The first impression to my mind on entering the vast Cathedral was that the internal effect is considerably dwarfed, and to some extent spoiled, by the introduction of the high coro (choir), which, with its heavy Corinthian columns, blocks the entire view of the nave. Above it rises the triforium; and the effect at this end of the building—in spite of the heavy coro—of this arcaded triforium is remarkably fine.

The triforium itself is specially to be noted in its wide bays of five or six lights, each with trefoil or quatrefoil above them, and a line of sculptured heads running round the arches: this interesting and original triforium is continued around the entire cathedral, and the line of sculptured heads appears also over the great door. "I know nothing," says Mr. Street, who illustrates this feature of the interior, "like this singular triforium elsewhere. The openings vary considerably in number, and the piercings of the tympanum and in the enclosing arch are also singularly arranged. . . . It is certainly more curious than beautiful, but at the same time it is valuable, as seeming to prove this part of the work to be from the hand of a native architect. . . . The original clerestory still in great part remains: simple, but good and vigorous in style, with but one special peculiarity in its detail. The windows are for the most part of two lights, with a quatrefoil circle in the head; the peculiarity is the omission to carry the chamfer round the extrados of the arched heads to the lights or the circle."

This clerestory belongs to the original building, which had been founded in A.D. 1221 by the Englishman, Bishop Maurice: sent on an embassy to Germany to bring back Beatrice, daughter of the Duke of Suabia, as bride for the Spanish King, he had seen the great creations of Gothic art, then in progress in France and Germany, and drawn from them his inspiration. It may be mentioned here that Mr. C. H. Moore in his "Gothic Architecture" takes special note of the triforium, just mentioned, of Burgos Cathedral. "It consists"—he remarks—"of five small arches spanned by a great arch, with a tympanum which is pierced by five trefoiled circles. The

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whole triforium somewhat resembles the triforium of Bourges; and before it was disfigured by the flamboyant parapet and ornamental additions to the shafts it must have been a stately and noble composition."

Advancing now further into the building as we enter the choir we find ourselves in the midst of the later and more sumptuous decorative work. The choir of Burgos Cathedral follows an arrangement which is very general —if not universal—in Spanish churches; that is to say, the choir proper (Coro) is transferred to the nave, of which it occupies the eastern half, the portion of the nave outside being called the Trascoro, and in many churches the Crucero. This is the arrangement at Burgos, and this I have found to hold good in other Spanish cathedrals, including Palencia, Toledo, and Leon. In the first of these, the noble cathedral of Palencia, and, in fact, generally, there is a passage made with iron or brass rails from the entrance gate of the Coro to the high screen before the altar, so as to enable the clergy to pass unimpeded during the various functions—this rail being removed when there is no service. The screen itself, or "Reja," often of beaten iron work, is a feature of great beauty in Spanish churches, almost as much as the inevitable carved and painted "retablo," which stands behind the high altar, within what is called the "Capilla Mayor."

Thus we find two divisions of almost equal dimensions, the "Coro" and the "Capilla Mayor," separated by the "Trascoro," or intervening space, which often can be closed; and over this "Trascoro" rises the "cimborio," or open lantern rising into the roof, which in the case of Burgos is one of the marvels of her great cathedral—and one might almost say of the world! Standing or seated here within the "trascoro," and looking up into this great lantern (whose date is 1567) we are amazed at its richness of detail, its luxuriance of decorative fancy. "One of the most marvellous and richest structures in Spain"—writes the author of "Cathedrals of Spain"—at once a mountain of patience and a burst of Spanish pomp and pride. It was a magnificent attempt at a blending, or rather a reconciliation, of the Renaissance and the Gothic—the character of the one and the form of the other. Gothic trefoil arches and traceries are carried by classical columns. Renaissance balustrades and panels intermingle with crockets and bosses, and Florentine panels and statues with Gothic canopies."

This magnificent central lantern, octagonal in design and 173 feet in height, was completed in 1567 from the plans of Juan de Vallejo to replace the earlier structure, which had collapsed in 1536. Above the pendentives is to be noted the double frieze of armorial bearings, with the arms of Burgos and of Charles V., and a double clerestory; and the whole is a marvel of delicate beauty and wonderful tracery, blending the later Gothic with Renaissance elements. The result, though it might not satisfy a purist in either school of architecture, more than justifies any inconsistence of style; and, as the morning sunlight streams through, breaking the infinitely varied richness of the pattern, it might seem indeed—as was said by Philip II.—"the work of angels rather than of men."

(To be continued.)

The West Riding Education Committee propose to enlarge the Hemsworth Kinsley Council school by providing additional accommodation for about 150 children.

Swansea Council in committee on Monday adopted the recommendation of the Unemployment Committee that the tender of Messrs. Johnson and Langley (Newport) for the carrying out of road improvements under the relief work schemes at Goitre Fawr, Vicarage, and Sketty Park roads be accepted. The figure was £29,476, as against the engineer's estimate of £46,278, a difference of £16 802.

Tenders will shortly be invited by the North-Eastern Railway for the erection of 200 houses on their estate at Faverdale, Darlington, to house the employees who will be engaged at the new wagon shops now in course of erection by the Cleveland Bridge Company at a cost of over £750,000.

Correspondence.

To the Editor of THE ARCHITECT.

Unification and Registration.

SIR,—In reply to the letter from Mr. Arthur Keen, that appeared in the last issue of your Journal, we beg to remind him that no amount of sophistry can alter *facts*, and that, at the moment, we are not dealing with the Report of the Sub-Committee to which he refers, with which, according to his own showing, the resolution of the Council is at variance. We agree with Mr. Keen that the first of the resolutions passed by the Unification and Registration Committee, and subsequently adopted by the Council of the R.I.B.A., defines the scheme in the following words:—

"That the principle of scheme A, namely, the bringing of all the architects of the United Kingdom into membership of the R.I.B.A., be adopted as the basis for unification."

Not only is there no suggestion of any test or qualification in the above resolution, but, in addition, the introduction of the word "all" provides for the admission to the R.I.B.A. of every individual member of the architectural profession in the United Kingdom who desire to enter.

Finally, if, as Mr. Keen insists, the above resolution of the Council does not mean what it says, then it is the duty of that body to make its policy clear to outside members of the Institute. But, until this is done, it is equally the duty of those interested in the welfare of the R.I.B.A. to point out the dangers and difficulties it will have to face, consequent upon the action of its governing body in supporting and adopting the present anomalous and mischievous proposal.

Yours, &c.,
GEORGE HUBBARD,
ALFRED W. S. CROSS.

45 New Bond Street, W. 1.
January 10, 1922.

Plumbers' Traps.

To the Editor of THE ARCHITECT.

SIR,—I should like to reply to "Enquirer" in your issue of December 30.

When I was young, in the middle of the last century, we used to use "Tobin's tubes" for ventilation or for "fresh-air inlets." Open sink pipes make capital Tobin's tubes. If they become wet and coated with grease, slime, or germs, so much the better for the hospitals.—Yours, &c.,

W. HOFFMAN WOOD.

Queen Square House, Leeds.
January 10, 1922.

"Sandals, Shoes and Boots."

To the Editor of THE ARCHITECT.

Sir,—In your issue of the 30th ult. I notice an allusion to the international language, Esperanto, in the article "Sandals, Shoes, and Boots." May I point out that Esperanto has on a number of occasions proved of practical service in architecture? For instance, in 1914 the Australian Government published particulars in an Esperanto journal of an architectural competition for a design for the Federal Houses of Parliament. From time to time I remember to have seen similar announcements in Esperanto for designs to be sent to this or that local authority which was undertaking the construction of public buildings. Then, again, Mr. Ebenezer Howard was able, by means of a lecture in Esperanto delivered at the Esperantist Congress in Cracow in 1912 before an audience of several hundred people representing thirty or more national languages, to spread abroad information concerning the Garden City idea.

It is to be hoped that architects will recognise that a neutral international language like Esperanto can be of great service to them. It should be needless at this time of day to add that there is no question of interfering with any national language; every nationality clings to its mother tongue—the smaller the nationality, the more tenaciously does it fight for the preservation of its language. But surely in this, the Twentieth Century, we cannot continue to be thus walled up in the mother tongue; we want, besides the mother tongue, a medium for international expression. And Esperanto fills the bill.—Yours, etc.,

P. G. CAMERON.

69, Schubert Road, Putney, S.W. 15.
January 8, 1922.

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Modern Architecture.

Of late we have had a great deal of controversy with regard to the true object of our profession.

The Architectural Institution in this country has, roughly speaking, been pulled to pieces, not owing to inferior taste or neglect of the R.I.B.A., for we have at the head of this world-famous institution, when who constitute as great an age of genius as that of our worthy predecessors Wren and Jones.

There is as much architectural talent in the Institute to-day as ever existed in bygone times, but the majority will not use good taste.

Take, for instance, the architecture of the early Greeks; note how these people bestowed their attention on the fundamental principles which must accompany good sound architecture, giving up intricate elaboration and ornament to the dust because they were never afraid to openly exhibit what lay behind, namely, construction. The Greeks achieved a greater result of architectural skill and beauty than ever has been conceived since.

The Greek age has never been outrivalled, and yet what was there costly or impracticable about their work? It was not the fact that Pentelican marble abounded in plenty, neither was it due to the abundance of elaborate ornamentations, and, furthermore, nor was it the vast sums of money and years of labour which produced the wonderful effect to which the world even now bows low before; it was the irreproachable and excellent masterly conceptions of what was architecturally beautiful which stamped these buildings as the finest of man's architectural productions, and these exist to-day, even though falling fast, as a reproach to the world and mocking our feeble effects to attain their like.

Like everything else, architecture is subject to periods of relapse which was evinced from the Roman Conquest in B.C. 149. These hordes of war-faring, selfish victors rolled on during the next 300 years, taking bodily hold of the arts, and as everything else with which they dealt gave architecture the death-blow through their irresistible passions for pleasure and wealth, and now came the time when architecture was placed subservient to the growing requirements of the people when lavish ornament and hasty construction ousted everything refined and beautiful; ambition and general enterprise overstepped the limit and carried the arts with it in the plunge to ruin.

The latter were lost until the great and noble revival occurred under Constantine who commenced Christianity. Following the general features of their unfortunate and foolish predecessors, they once more devoted their attention to civil development, and with this came St. Sophia, St. Marks, and the rich Byzantine architecture which ever gave room to originality and invention of design. In this was the germ of the mediæval cathedral, and even this onrush was stemmed for a time by national upheavals, but still it prospered until a climax again occurred as we see in our post-English-Gothic, and then, at this stage, alas, we find as great a fate befallen the arts as was cited in the fall of Rome.

Then came the dark ages throughout the world with the exception of Italy, who were striving to take up architecture where their ancestors the Romans left off. It was here, under Brunelleschi in the fifteenth century, that the arts revived, and climbed to greater heights than was attained in the monuments from which they originated.

A century later, however, our own country became aware of the glorious revival on the Continent, and only after a century of blind endeavours with Elizabethan and debased Gothic, aided in its uninteresting course by Italian craftsmen and German builders, did Inigo Jones, our master in architecture, form a style in this country which reigned supreme for the next 200 years, and would still have had the prospects of a greater brilliance than was ever before exhibited, had not our ambition and commercial enterprise laid aside the germs in the art which a master mind matured and spread abroad that we who follow might retain and even improve upon what he had so firmly planted in our lands.

Now we shall analyse our buildings of to-day and include in this the works of the last century. The growing tide of commercial enterprise and speculative building, the shortage of money owing to the wants of a rapidly increasing population, and the manner in which architecture has developed business methods, and the superabundant supply of patent building materials, &c., which are daily placed on the market from the designs and conceptions of wholly inartistic minds whose sole interest is money-making; these are the drawbacks to our architectural profession to-day.

Take the average architect to-day who receives a client who requires, say, a large emporium. He wishes to spend, say, £100,000, but he comes into your office and treats you not as an architect but as a building engineer and a man who is prepared to take the trouble and responsibility to erect this building for him. He tells you the expenditure must not be in excess of the sum specified, but it is to be a tremendous place, and must completely occupy a site which the client has bought prior to consultation with the architect. He also stipulates that the shop front is to consist of one vast showcase with only 7½ in. steel supports at intervals to carry the super-incumbent necessary above; he wishes this in order to give an appearance of one large business concern and not a score of small concerns as would be the effect of a great superficial frontage of heavy masonry supports as should be the case for good sound architecture. He also states that the premises must be completed for business purposes within twelve months. These are the state of affairs which are killing architecture to-day.

Together with the fore-mentioned is the daily growth of ferro-concrete and steel skeleton construction which is just in opposition to the principles of architecture where truth of construction forms so great a constituent.

Yet another grave blow which the nation has dealt the profession and then I will draw my views to a close, is the scandal of the housing schemes which has so held architecture at a deadlock during its triumphant course. In this case we have Government departments wilfully giving away contracts to absolutely inexperienced hands. Is this in itself one of the greatest injustices to the profession?

The ever-growing number of mere amateurs who make architecture a business and have no more idea of beauty than a newly-born child, and the advantages this class of individual claims in the way of advertisement, is daily pulling the arts down the road to ruination. These amateurs take up a large contract, or even a small one, and the expense incurred upon hopeless decoration, surmounting a still more hideously proportioned carcass, could in many cases have been utilised in the erection of a charming architectural edifice had only the contract been entrusted to a man with an educated artistic mind as we can daily find in members of the R.I.B.A. who form the greatest and most noble architectural body in the world.

To appear to the public that we are debased and neglected would be ruinous to our cause, so we cannot, and I sincerely trust we shall not, stoop to such a low state as to indulge in common propaganda, but in Mr. Welford's own plain commonsense wording, "Object lessons daily and hourly to the uninstructed in the form of charming houses in which they must live and beautiful buildings in which they must work would be more value than anything else." In fact until we once again begin to realise the logic in Iñigo Jones's motto, "A building to be architecture must be masculine, solid, and unaffected," we shall never remedy the evil in our midst with which the R.I.B.A. are engaged in bitter conflict.

Mr. Lionel Jenkins, of Bury St. Edmund's, Surveyor to the County Council of West Suffolk, has been appointed Borough Engineer of Newport (Monmouthshire) at a salary of £1,000 per annum.

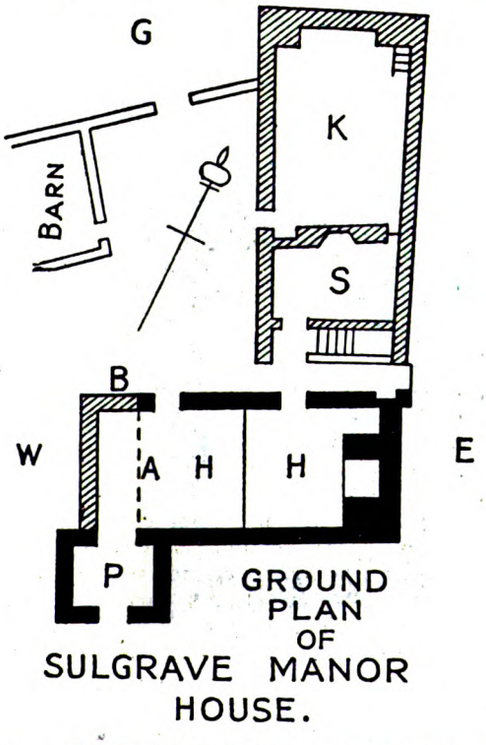
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Sulgrave Manor House.



SULGRAVE MANOR, BRACKLEY, NORTHANTS. [*Bedford Lemere, Photo.*

The Sulgrave Institution of Great Britain and America has for its object the promotion of an Anglo-American understanding, and is widely supported in both countries.



A.—Screens. B.—Original Back Door. E.—Site of former East Wing. W.—Site of former West Wing. G.—Site of former Gate House. H.—Hall. K.—Kitchen. P.—Porch. S.—Sitting Room.

During the ten years of its existence it has carried out the following work: the purchase, partial restoration and furnishing of Sulgrave Manor, the organisation in 1913 of the celebration of the centenary of the Treaty of Ghent (the precursor of one hundred years of peace between England and America), the organisation of the



TUDOR GABLE OF DOORWAY, WITH WASHINGTON AND TUDOR ARMS.

Tercentenary of the Pilgrim Fathers (1920), the initiation of Britain's Day Celebration in the United States, the foundation of the first Chair of American History in England, the publication of over twelve historical and other

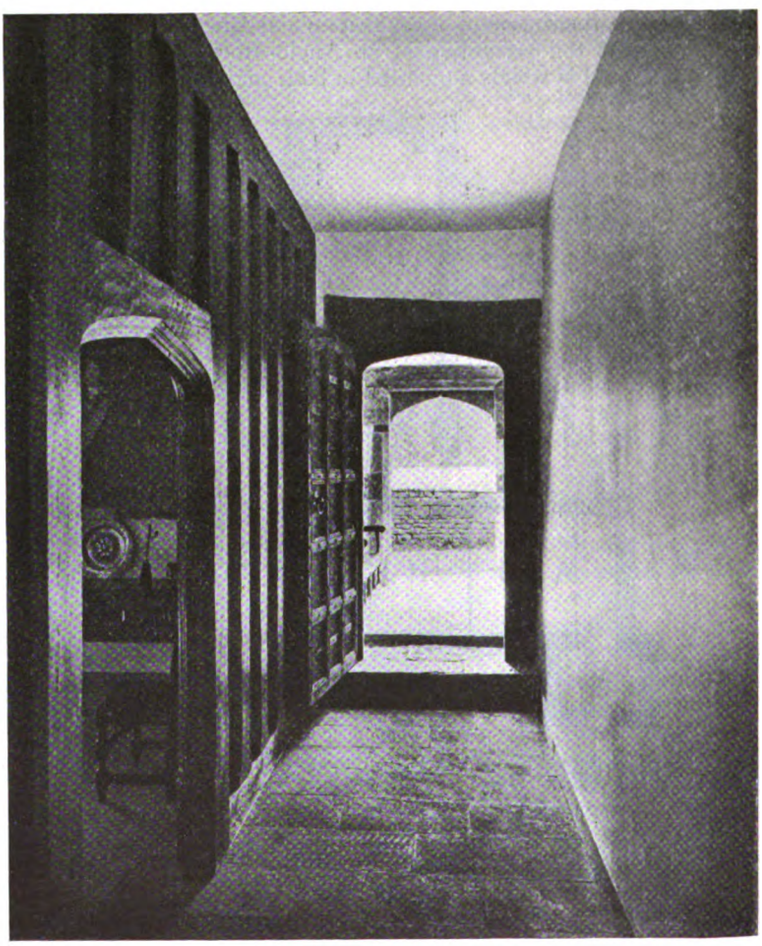
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SULGRAVE MANOR, DINING HALL. [Bedford Lemere, Photo.

works on Anglo-American relations, the placing of the St. Gaudens monument of Lincoln opposite Westminster Abbey, and the presentation of a statue of Lincoln to Manchester, a Lincoln memorial to Hingham, Norfolk, the initiation of a gift of a Washington statue from the State of Virginia to the British people, and that of a Washington bust to St. Paul's Cathedral, as well as the promise of busts of Chatham and Burke to the American people. It is proposed to raise another £50,000 in this country for the more effective organisation of the movement, for completing the furnishing and restoration of the Manor House, for founding scholarships in America for British boys and in England for American boys, together with travelling scholarships for journalists, and for the development of the Manor House, Bredon's Norton, an adjacent property which has been bequeathed to the Sulgrave Institution by Mrs. Woodhall Martin, and is to be utilised as a centre for Anglo-American conferences, study and research, and as a rest house for Americans visiting England.

The connection of the Washington family with Sulgrave dates back to Lawrence Washington of Northampton, of which town he was twice Mayor. He bought one of the two manors into which Sulgrave was divided on the dissolution of the religious houses by Henry VIII. for £321 14s. 10d. Sulgrave was held by his son Robert, who succeeded to it in 1584, but in 1610, with the consent of his eldest son Lawrence, the Sulgrave estates were sold to his nephew, Lawrence Makepeace,



[Bedford Lemere, Photo.
SULGRAVE MANOR, PORCH AND DOOR.

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SULGRAVE MANOR, COURTYARD. [*Bedford Lemere, Photo*

of Chipping Warden, Northants. Here the connection between the Washington family and Sulgrave was terminated. Two more generations of the Washingtons lived in England, John Washington emigrating to America, where he died in 1677. Another period of two generations separated this John Washington from the George Washington who was born in 1732 and died in 1799. In George Washington were typified characteristics which were essentially English, and never more so than in the instincts which led him—typically conservative and aristocratic in temperament as he was—to become the great protagonist of England in the War of Independence. Maine in his work on the American Constitution has clearly shown how the founders of the United States felt it to be necessary to place every possible bar in the way of a hasty use of democratic powers. The Americans were in fact—like the barons in the reign of John—banded together to resent what they felt to be the abuse of constitutional rights; and it is this standpoint which differentiates the American Revolution from almost any other in the world's history.

Sulgrave Manor House stands at the east end of the picturesque village of Sulgrave in the south-western part of Northamptonshire, not far from the borders of the counties of Warwick, Oxford, and Buckingham.

The manor house, at the eastern extremity of the village, is separated from the road by a field containing some old elms which formerly may have been part of an avenue. The house, a gabled limestone building of two storeys, with dormer windows, is made up of two blocks at right angles, the south-south-east part consisting of a porch and gable, hall and bedroom, all forming part of the original work. The main entrance was through the porch, which has a four-centred arch under a square head and label. In the two spandrels are the Washington Arms with the mullets and bars sunk instead of in relief, that on the left only having a crescent. Unfortunately this coat of arms has been damaged by the weather. Over the entrance on the outside is a shield embossed in plaster with the arms defaced, as they have been for at least one hundred and thirty years. Above this is a window surmounted in the gable by the Royal Arms which display the lilies of France and the lions of England quartered all within the garter and supported by dexter a lion, sinister a dragon. Over this is some embossed plaster work and the letters "E.R.," and the Tudor rose and the French fleur-de-lys appear in close conjunction with the coat-of-arms. Evidently the initials stand for "Elizabeth Regina." Also inside the porch, embossed roughly in plaster, is a lion on one side, and on the other a dragon.

The passage, or "screens," from the porch straight through to the back door was about five feet wide. The original back door from the "screens" to the court has been removed, and a doorway in the style of about 1700 has been substituted a little more to the east. The original hall to the east of the "screens" remains, but it has been divided. Originally it was about twenty-four

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and a-half feet in length by eighteen feet in width. At the east end is a fireplace seven feet in width under a mutilated four-centred arch.

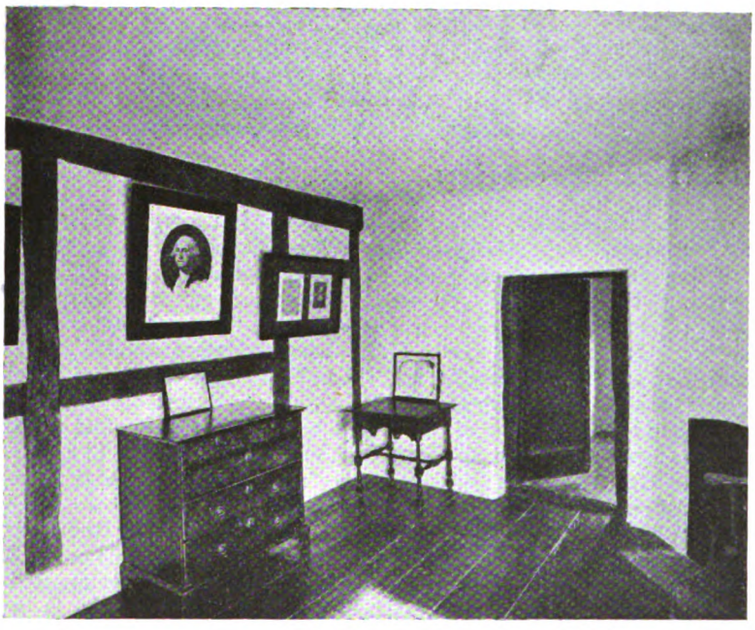
The wing which stretches northward at right angles to the old hall is too far to the west to be part of the original design. It has no really ancient features in it, and on the ground floor is divided into an oak staircase of well-worked twisted balusters, an oak-panelled sitting-room and a kitchen. It is stated that at one time there was a large arch with a porter's lodge over it to the north-west of the present hall. If that is true then there must have been a court on the north side of the hall with wings to the east and to the west of it. The wing to the east would contain the family apartments and that to the west the kitchen and buttery. The house was at any rate arranged, and at least partly built, on a large scale. Perhaps the original design was never completed, but from an old account written in 1789 it is known that part of the old buildings had been just recently pulled down.

It is interesting to note that the stars and stripes are founded on the basis of the arms of the Washington family which are described as Argent, Two Bars Gules, In Chief Three Mullets of the Second.

The pieces of furniture in the dining-room and bed-chamber are all fine contemporary pieces contributed by various people. Amongst these may be mentioned the late Lady Paget, Lord Furness,



[*Bedford Lemere, Photo.*
SULGRAVE MANOR, A BEDROOM.



[*Bedford Lemere, Photo.*
SULGRAVE MANOR, ANTE ROOM.

Lady Sackville, Lady Cunard, Mr. Pierpont Morgan, Mrs. Whitelaw Reid, and the Stars and Stripes Club of Manchester, which gave us the fine bedstead in the upper chamber. Amongst numerous other gifts are a fine bronze bust of Washington (copied from the Houdon original) presented last June by the Sulgrave Institution of America, British and American flags presented by the British Pilgrims and American organisations, and various deeds and letters signed by George Washington and members of his family.

The grounds around the Manor House have been newly laid out by Sir R. Blomfield, and there will soon be a very beautiful old English garden surrounding the place. The two chief features of interest on the outside of the building are the Washington Arms on the right spandrel of the main doorway on the south front, and the Tudor Arms in the gable over the same doorway. These are objects of continual interest to the many American and other visitors who now visit Sulgrave Manor.

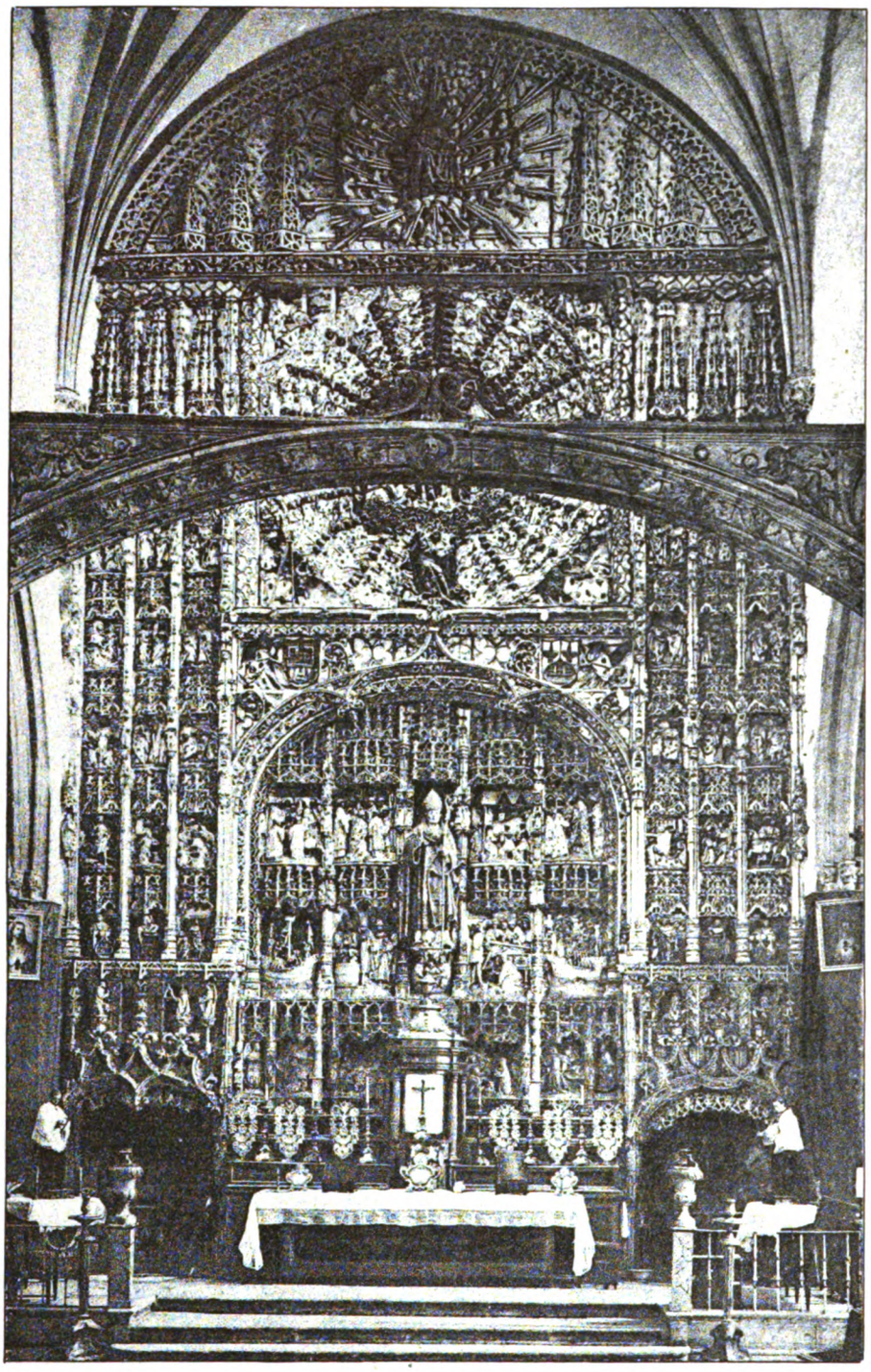
It will be seen from what has been said that the Washington family were only connected with the old property of Sulgrave for a brief period of its history; but to Americans, who more than any people value associations, it affords the most tangible link between the Washingtons as an English family and the great Virginian, and it is, and will be, more and more a place of pilgrimage for Americans in England. It is, therefore, wholly appropriate that it should in these later days form the centre of a great association, having for its object the furthering of good understanding and international friendship which, but for the unhappy mistakes of our forefathers, would have kept the English-speaking race an indivisible unit.

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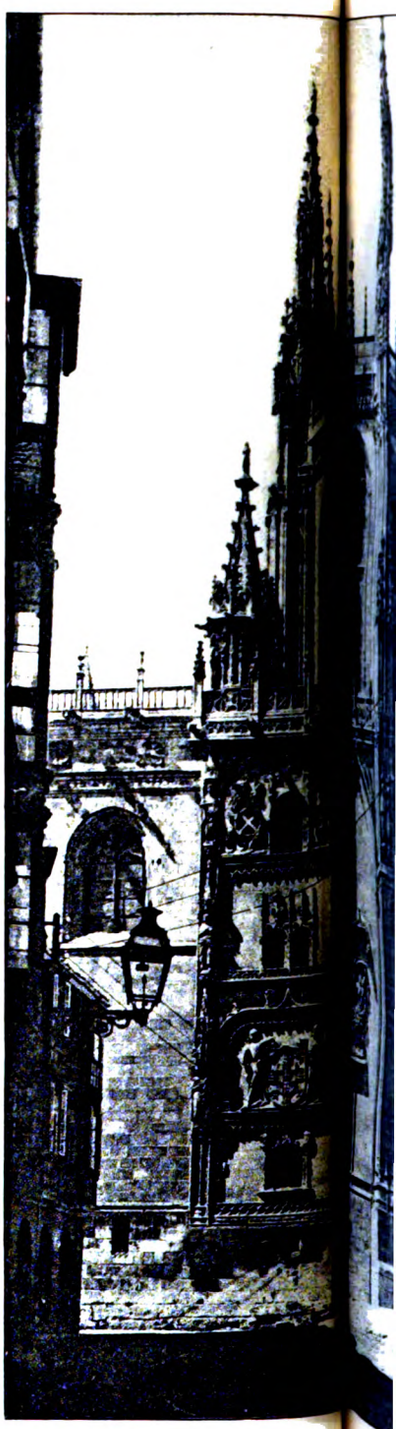
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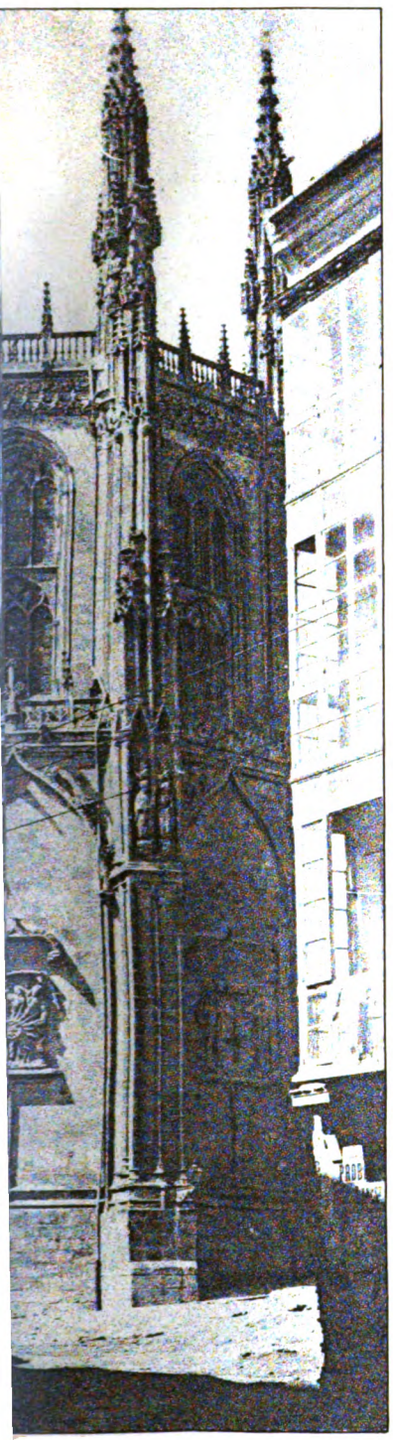


THE REREDOS OF ST. NICHOLAS.

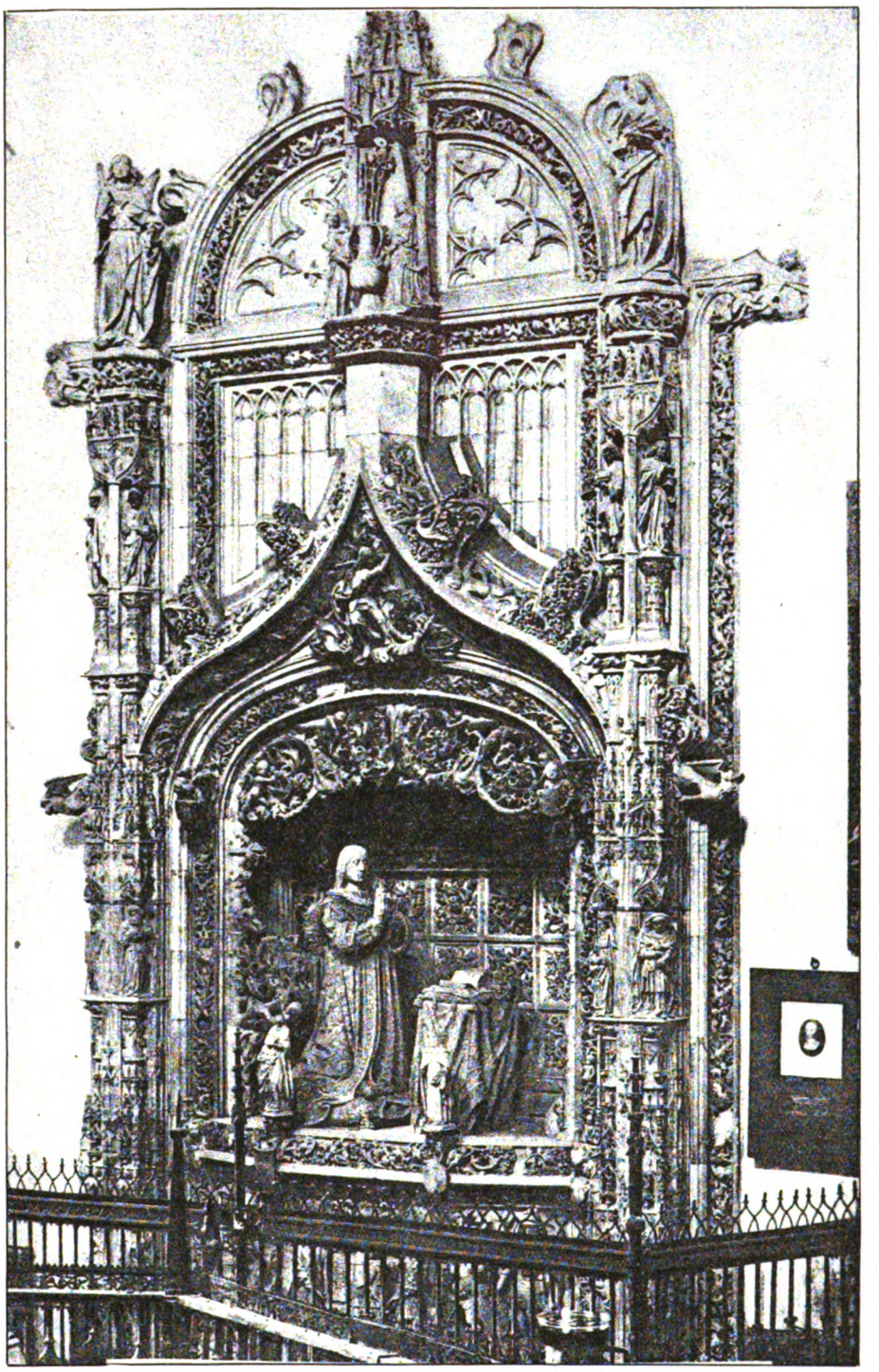


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UNIV. OF
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STABLE.



THE TOMB OF THE INFANT DON ALPHONSO.

"INK-PHOTO." SPRAGUE-HAYCOCK (PRINTERS) LTD. 69 & 70, DEAN STREET, LONDON, W.1.

AL.
INTON.

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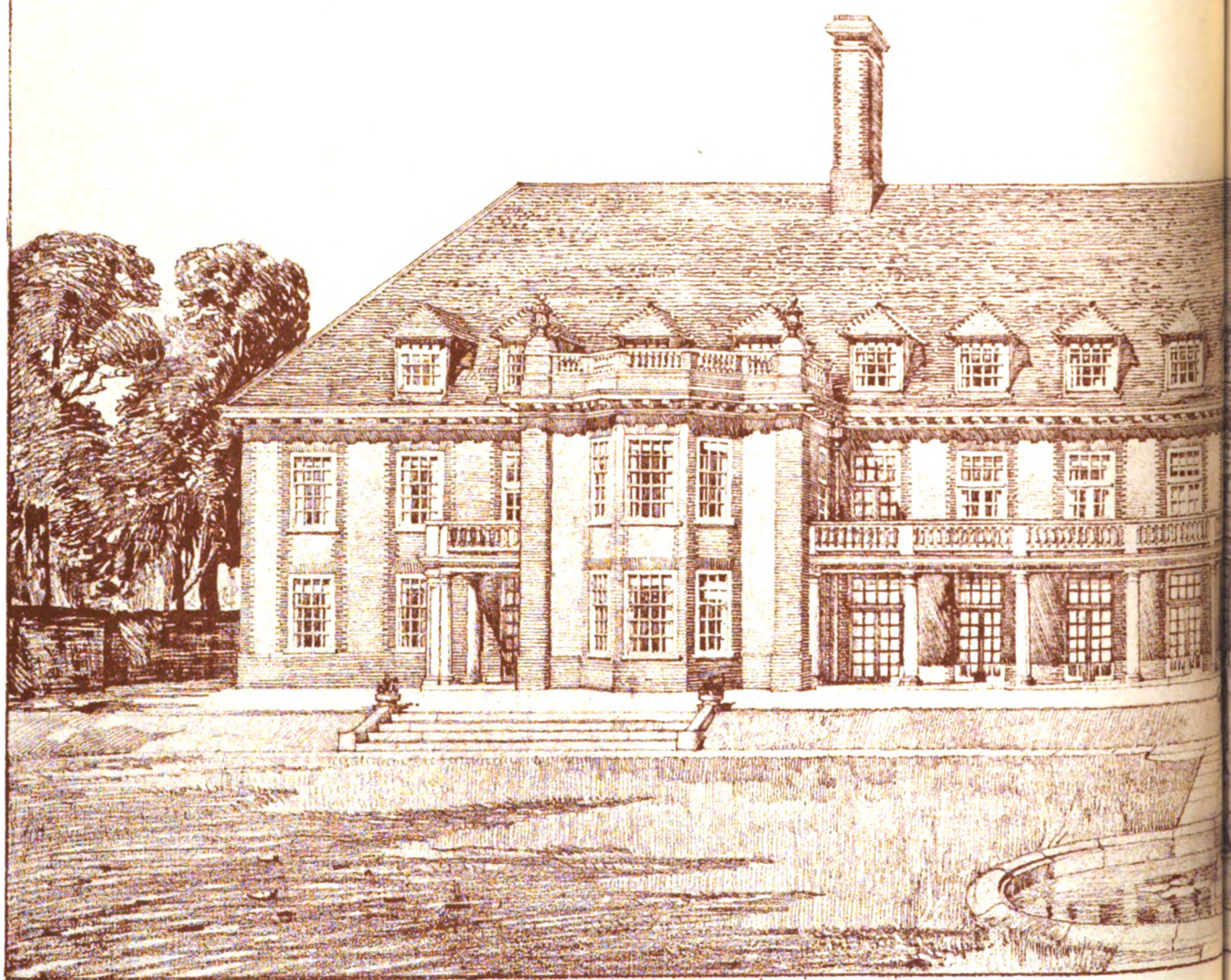
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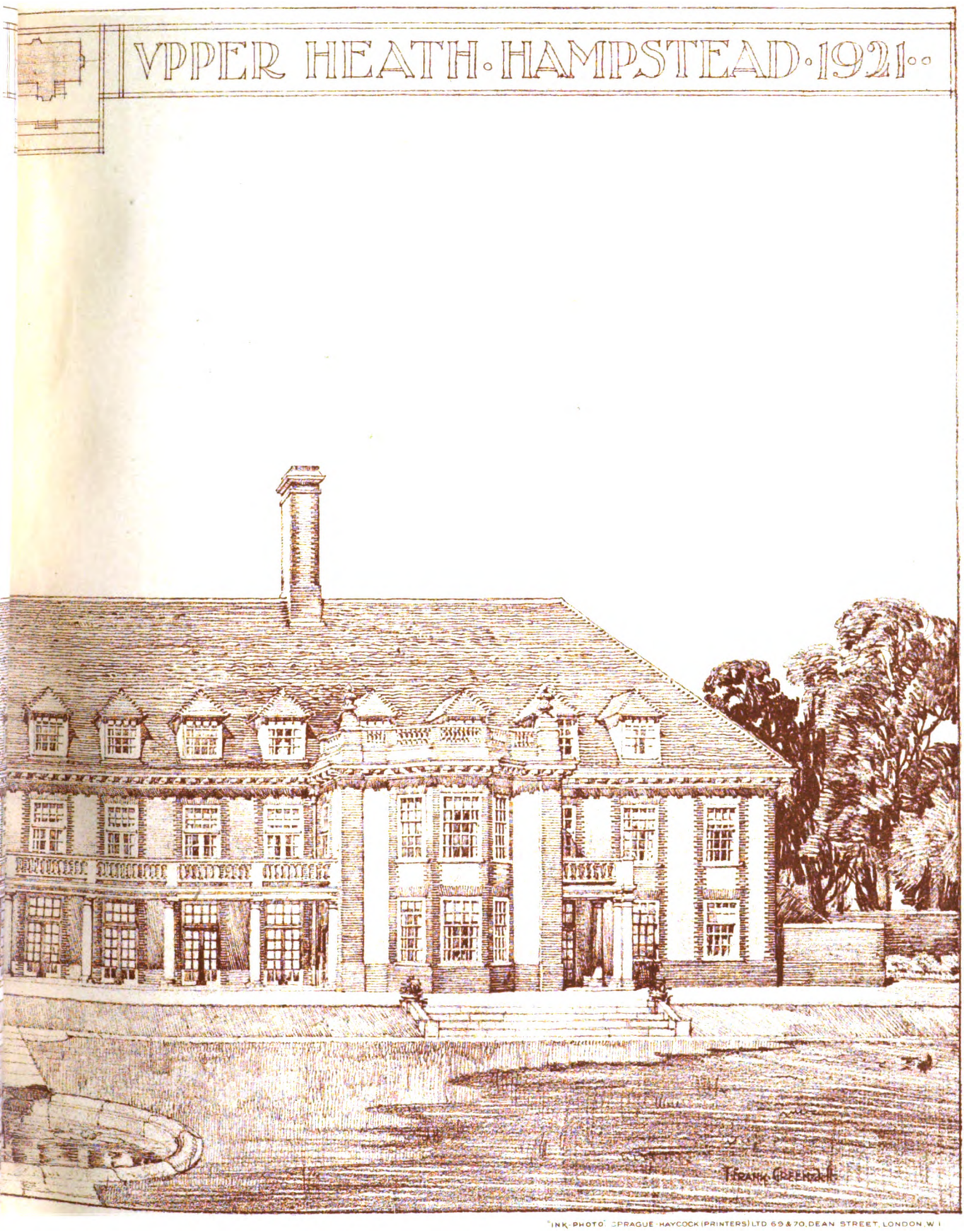
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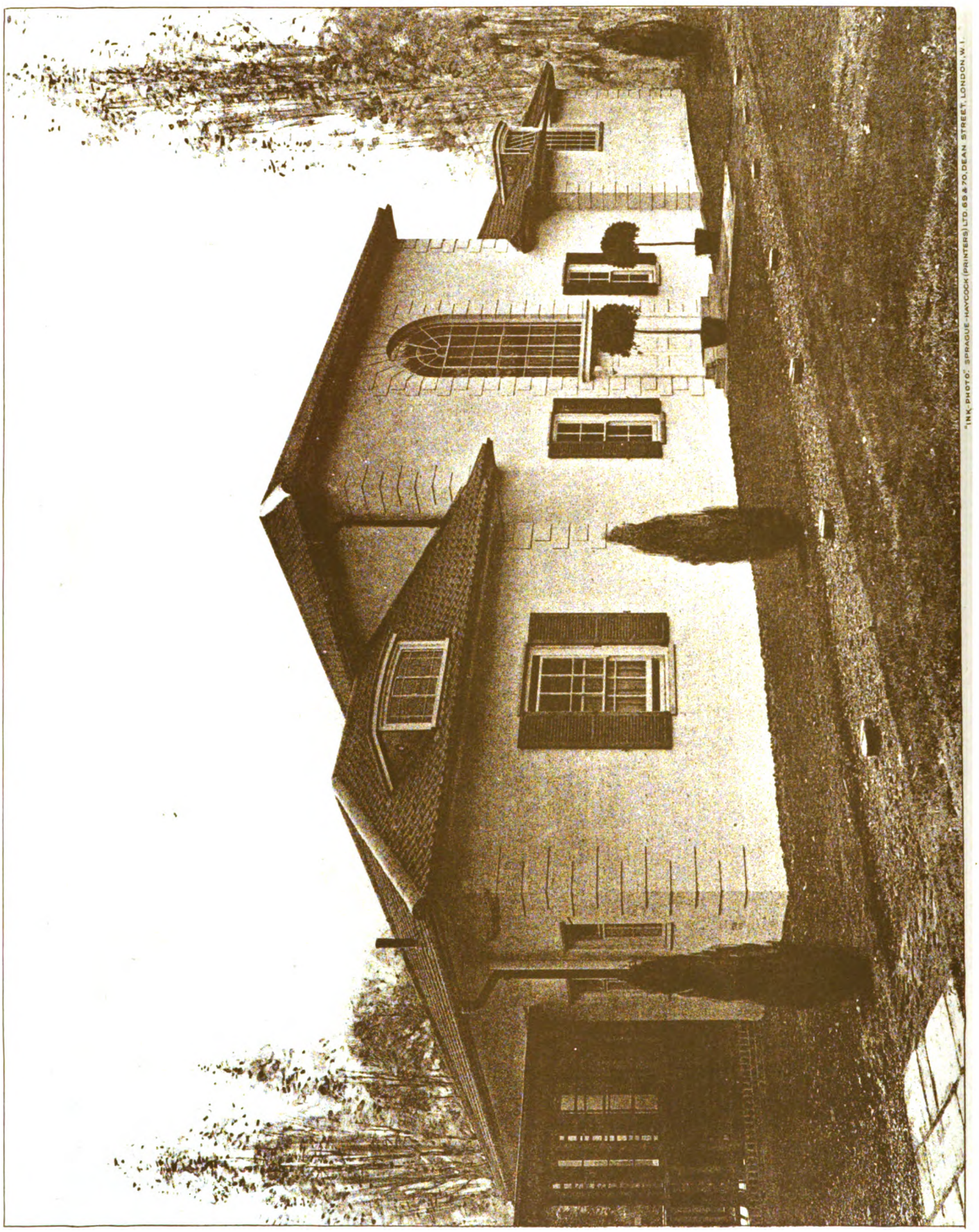
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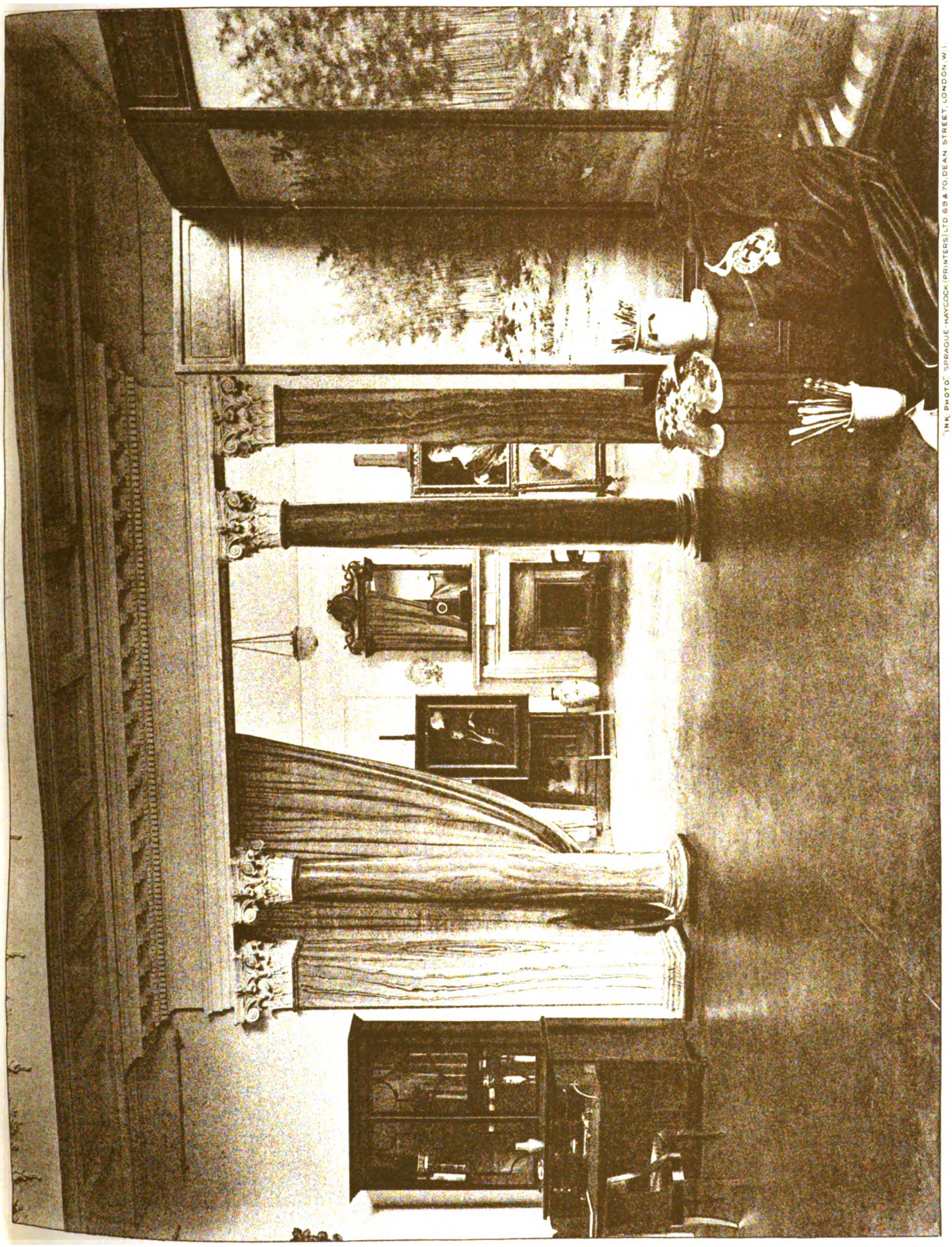


STUDIO AT HAMPSTEAD FOR PHILIP DE LASZLO, Esq.: THE STUDIO FROM GARDEN.
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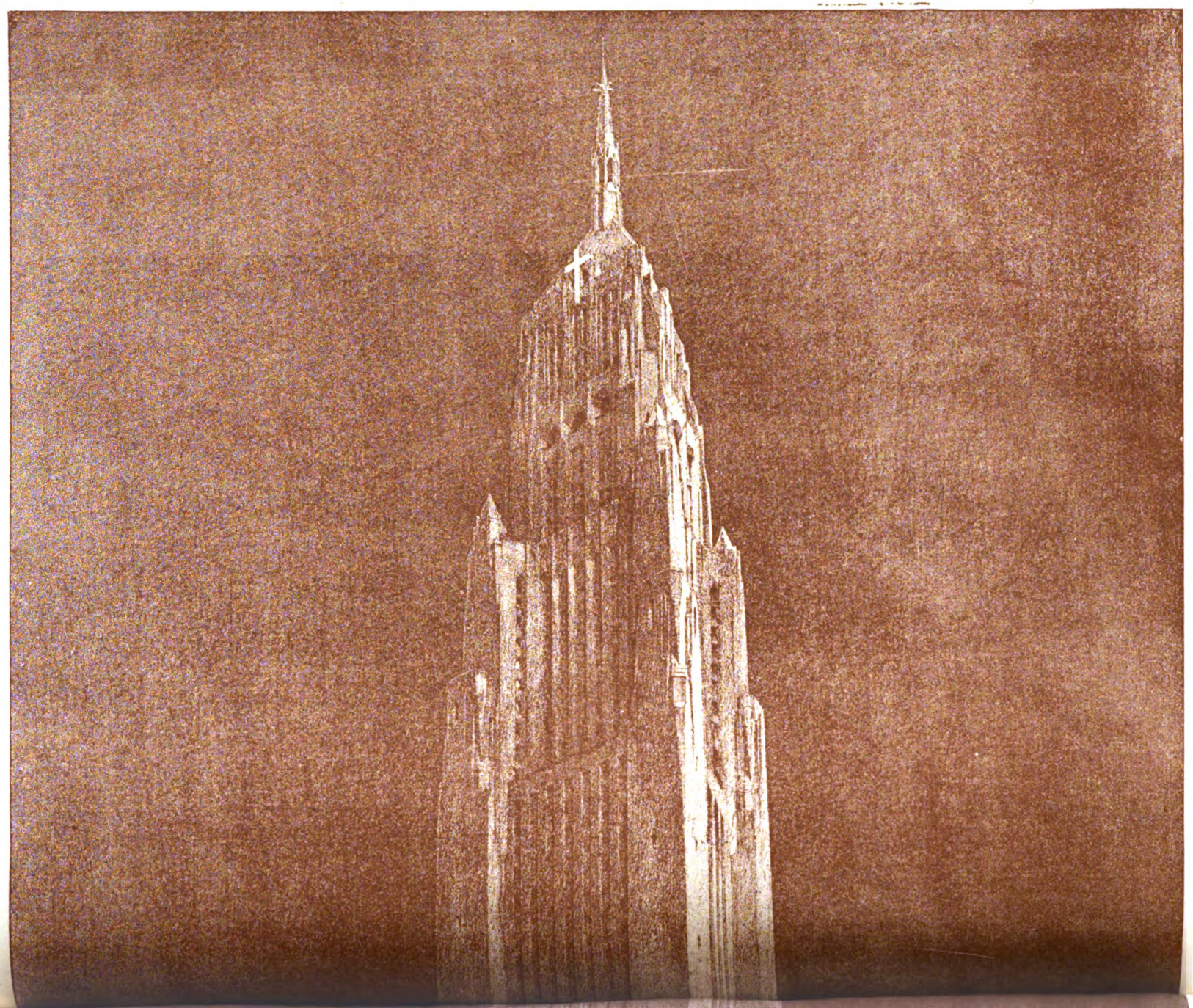
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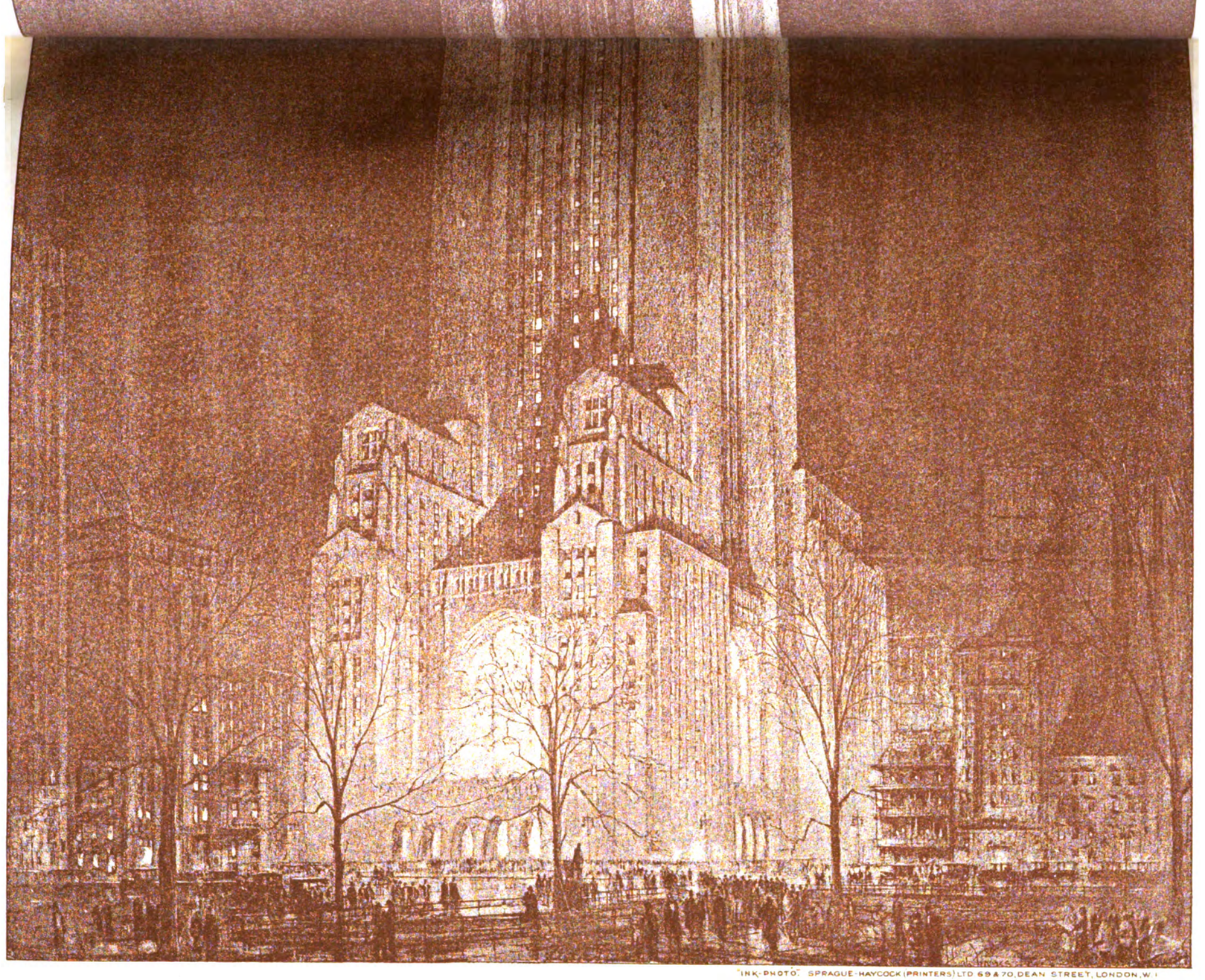
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PROPOSED CENTRAL HEADQUARTERS BUILDING FOR THE INTER-CHURCH COUNCIL, NEW YORK.

B. G. GOODHUE, ARCHITECT.

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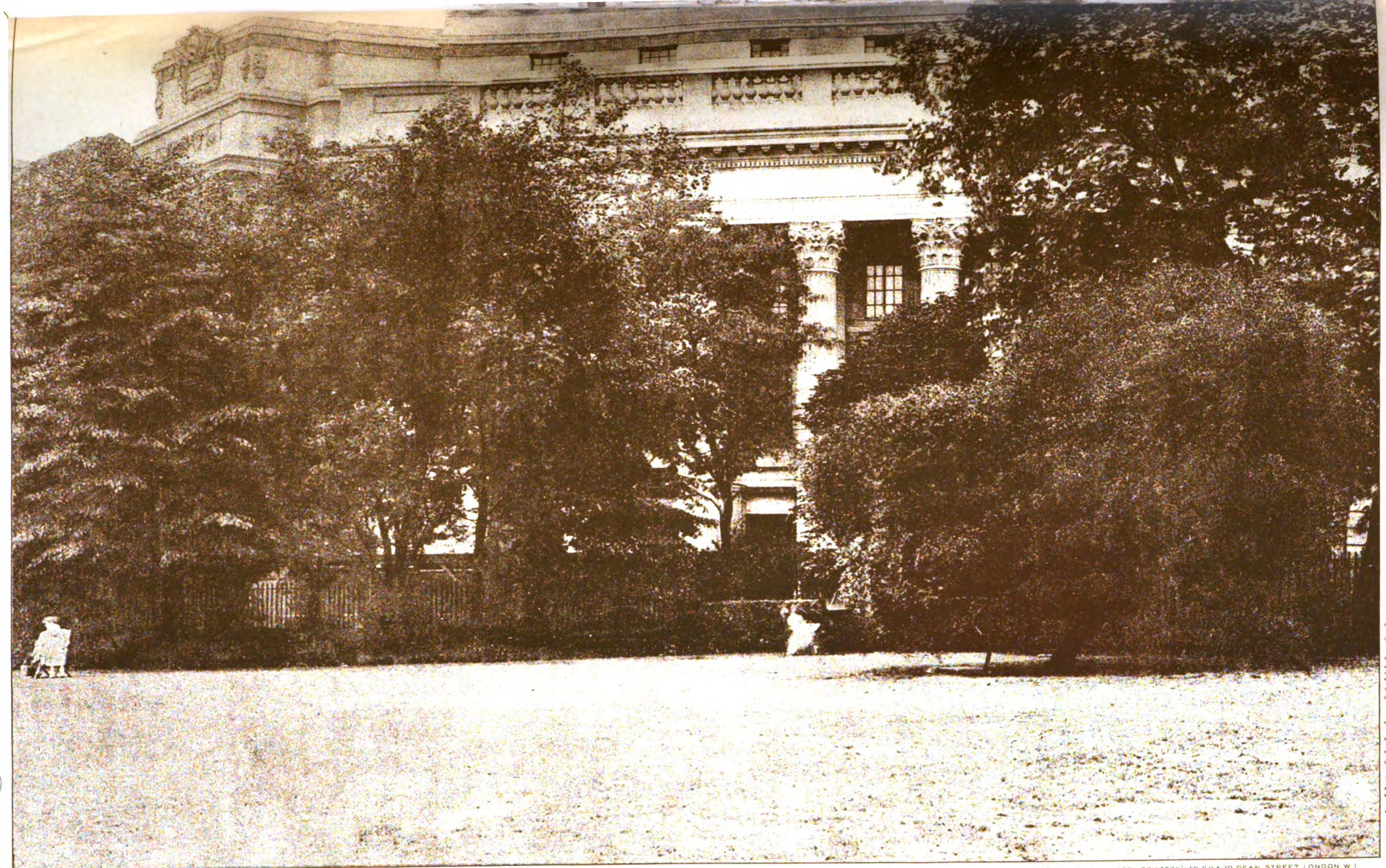
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PORT OF LONDON BUILDING, TRINITY SQUARE, LONDON—AS SEEN FROM THE GARDENS.

EDWIN COOPER, F.R.I.B.A., ARCHITECT

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The Lay of the City Churches.

1.

There stands a church in Lombard Street,
All Hallows is its name,
And circumstance has given it
Quite undeserved fame.

2.

For it and eighteen others
Were scheduled by the Church
As not required for present needs,
Of which they made research.

3.

Then controversy hot arose,
For many held the view
That what the Bishop wanted
Was a shameful thing to do.

4.

The churches are the people's,
Some cry; while others say
Whoever they belong to
They certainly must stay.

5.

For strangers come to see them,
While clerks and typists stray
Within their hallowed precincts
On almost every day.

6.

These churches fair were builded
From drawings made by Wren,
And every stone used in their walls
Was consecrated then.

7.

'Tis true the Church needs money,
While people will not pay
A price for what they fain would keep
For ever and a day.

8.

Some may earn a reputation
As exponents of an Art
Without the obligation
Of paying for the part.

9.

Some mislead by sounding phrase,
Others love to see their name
In the correspondence columns
Of the "Times," for that spells fame.

10.

The Church must pay the penalty
For placing on the list
The names of many churches
Which, demolished, would be missed.

11.

'Tis true that some amongst these
Are buildings which we know
Analysis and judgment
Would tell us well might go.

12.

But it's always very easy
To avoid considered care
By appealing to the prejudice
We know is always there.

13.

For ancient rights of property
Should not apply if we
Covet what does not now belong
To either you or me.

14.

The statutes of our ancient law
Can be recast to suit
A policy that some might term
"The Ukase of the Boot."

15.

Thus preservation for the State
Is confiscation plain
Of that which private citizens
Did in the past retain.

16.

In reverence for the past may hide
A revolution's creed,
And those who do not know our ends
May help us in our need.

17.

For little streamlets make a flood,
And many, we well know,
Would turn in haste could they but see
The goal to which they go.

18.

Truth is oft surcharged with falsehood,
While clear issues are obscured;
Right and wrong may seem a tangle,
Changed in essence by a word.

Of the nineteen churches reported on by the Bishop of London's Commission, it seems to us that no reasonable objection can be raised to the demolition of the following buildings by their owners—whoever they may be—unless churches are to be retained despite the fact that they are no longer required for ecclesiastical purposes, or their retention justified by their architectural merit:

1. *All Hallows, Lombard Street.* The woodwork should be retained and placed where its beauty can be seen.
2. *St. Katherine Coleman.*
3. *St. Michael, Cornhill* (excepting tower). This church is hideous, and any merit it ever possessed was spoilt by mid-Victorian restoration.
4. *St. Clement, Eastcheap.* A very poor building of no interest.
5. *St. Dunstan in the West* (excepting tower—a fine mid-Victorian design).
6. *St. Dunstan in the East* (excepting tower). A poor modern church attached to one of the most interesting of Wren's steeples.
7. *St. Stephen, Coleman.* A church of no merit whatever, the only interesting feature of which is the gateway in Coleman Street.

To the above seven churches we should be inclined to add three more of slightly greater interest and merit which seem to us to occupy an intermediate category between the churches which ought to be retained and those which might be demolished.

1. *St. Botolph, Aldersgate.*
2. *St. Botolph, Aldgate* (excepting tower).
3. *St. Margaret Pattens.* This church is utterly unworthy of the very beautiful steeple. We are surprised that it was not included among those scheduled by the Bishop of London's Commission.

One other church, *St. Mary Aldermanbury*, if preserved, should be so on account of its picturesque position with regard to adjacent buildings, as the church itself has been spoiled by hideous semi-Gothic restoration.

We believe that a competent and independent architectural committee would practically endorse our opinion, and that the retention of the best of the churches would be rendered more certain for all time if the subject were dealt with more impartially than it has hitherto been treated in the controversy raised by communications to the Press.

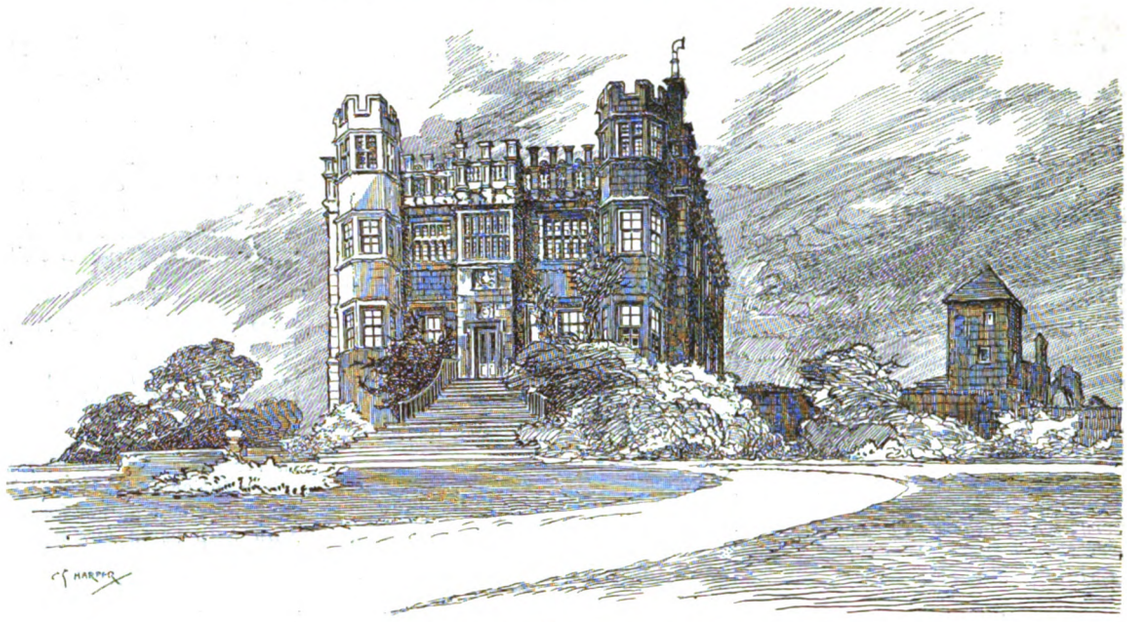
It seems to us that the vexed question of the rights of ownership should be first gone into and determined, and if the Church is indisputably the owner of these buildings a competent committee of architects should be appointed to inquire judicially into their architectural merits, and then, having come to a conclusion, the churches should be divided into three categories:—

(*a*) Those which might be demolished without loss to the artistic beauty of London.
(*b*) Those to be retained for services of the Church as the Church Council thinks fit.
(*c*) Those to be retained for their architectural merit, and which, without sacrifice to such value, might be adapted in a conservative manner for other uses.

The Church authorities should also have the view impressed upon them that these churches belong to a period in which coloured glass, stencil decoration, and schemes of strong colour were never employed, and should be urged, in the interests of English art, to restore them wherever possible under competent direction to the state in which they were originally intended to remain by the designers of the seventeenth century, and that all traces of restoration-Gothic should be obliterated. If the Church would take the course we have indicated it would, we believe, disarm criticism which, though in many respects founded on false premises, has been strengthened because it has allowed acts of ignorant vandalism which has depreciated the value of fine examples of a phase of English architecture.

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Secrets and Treasures of Old Houses.



HEATH OLD HALL, WAKEFIELD.

It is always a melancholy sight to see any old house, however humble its appearance, in the hands of what are technically known as "housebreakers." Much more so it is the case when some historic or artistic building has been handed over to the "knackers," who treat the "carcase" with little more respect or compunction than do the Hamburg slaughtermen the old and worn-out horses which find their way to the yard.

How many romances and how many secrets have not been bound up in the walls and rooms of the ancient, historic, and even ordinary houses, which have been pulled down during the last twenty years? We have heard many stories whilst pursuing inquiries prompted sometimes out of deep interest in the building's fate, and at others perhaps out of mere idle curiosity.

Of course it occasionally becomes the ill-fortune of old mansions that are at once stately, unoccupied, and partly in ruins to attract the notice of marvel-mongers. There is such a house near Pembury Green, in Kent, which some thirty years since suddenly acquired the repute of being haunted. Crowds of people sought this lonely spot, situated on no road, and wrought much mischief. Great Bayhall Manor House is the name of it. As our illustration shows, it is a beautiful, if dilapidated, architectural work of about 1670. The history of it is obscure. Beyond the facts that it belongs to the Marquis Camden, and has been deserted for a century or more, little information is to be gathered.

Seaton Delaval Hall, designed for Admiral Delaval by Vanbrugh in 1718, looks equally grim. But its present appearance is largely due to the fire which over a century ago gutted it. Legends, it is true, are associated with this great mansion, the home at one time of Sir Francis Blake-Delaval, one of the most eccentric squires of the eighteenth century, but they are tales of wild frolics and practical jokes on guests.

Heath Old Hall, the subject of curious legends, is a weird but stately mansion close to Wakefield. It was built in the time of Henry VIII., when the Renaissance was coming in and warring in style with the traditional gothic. The arms of John Kaye of Dalton, and his initials, "I. K." over the entrance, are more enduring than the Kayes themselves; for in less than thirty years they were succeeded by the Withams. William Witham, who died in 1593, was thought to have been poisoned by the "devilish arts" practised upon him by one Mary Pannal, who was duly executed as a witch at York. His son Henry died childless, and was succeeded by his sister, who married a certain Jobson of Cudworth, and on becoming a widow married again, Thomas Bolles of Osberton, and was a second time widowed. In 1635, for services to the King's cause, she was created a female baronetess (if such a term may be used) with special remainder to "any" heirs. This honour descended to her daughter by the second husband.

Old Lady Bolles lived many years at Heath Old Hall, and died in 1662 in her eighty-third year. Why she haunts, or is said to haunt, her old home does not appear. But it is the fate of most ancient and romantic-looking houses to be saddled with these legends. It is enough for a house to look as though it had a story presently to be provided with one, especially if it have a moat. Much magic in moats! Heath Old Hall has no such appendage, but the deserted Harvington Old Hall, near Worcester, which presents a most romantic outline, has a moat entirely to match, and a number of inconclusive legends and ghost-stories as well, which give fine thrills to the picnic-parties who in summer frequent the spot.

There was a world of romance bound up with the history of a certain cottage set a little way inland from the Kentish Coast, a mile or two westward of Ramsgate, we watched for an hour or two being pulled down a decade or so ago.

In the early part of the nineteenth century it had been occupied by one of the most famous of Kentish and Sussex smugglers. A man not unknown to the Admiralty of those days as a useful purveyor at times of intelligence regarding the movements of Napoleon's fleet. It was in the kitchen of this cottage that a Frenchman had been first interviewed and then slain by an officer of King George III.'s Navy in a dispute which arose as to terms.

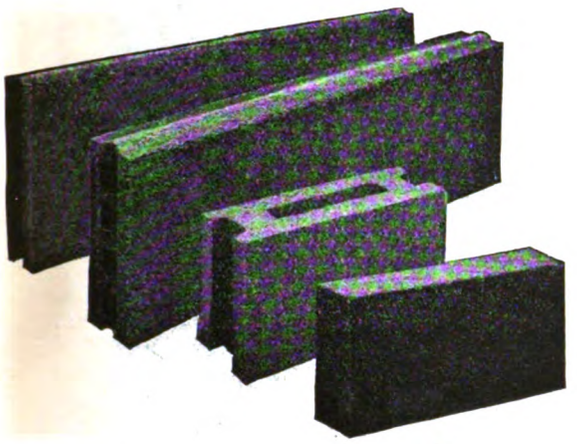
The tale which passed current at the time was that this M. de R., in the heat of anger from disappointment that

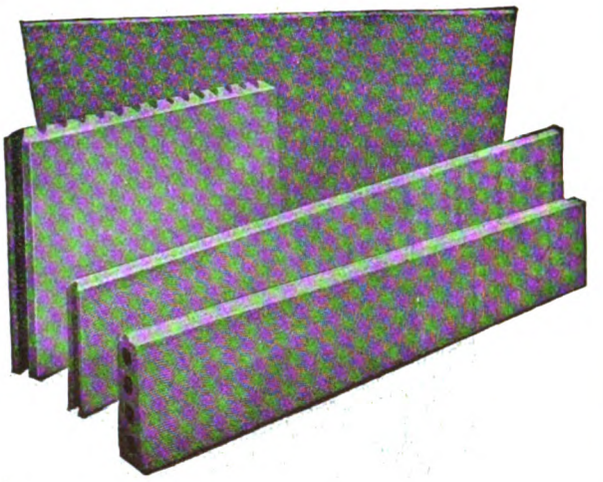


SEATON DELAVAL HALL.

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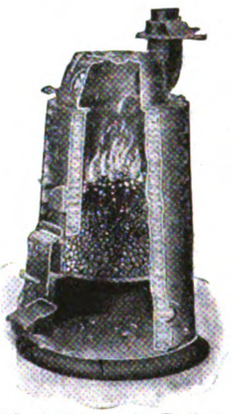
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WARDLEY HALL.

his "services" were not more handsomely remunerated, struck at the naval officer who was, in the presence of the famous smuggler, treating with him. The officer at once picked up a pistol, which he had laid on the table, and shot the Frenchman. A mark in the whitewashed, wooden wainscot was pointed out as that of the fatal bullet, but this would appear doubtful.

What was even of more interest was the discovery of several secret hiding places for smuggled goods in the walls of the cottage at the back of the narrow boxed-in staircase, and a fine "tub hole" beneath the large stone of the old-fashioned hearth. In a lean-to out-house was also discovered a huge "tub hole," which had been apparently unknown to the owner who succeeded old Jack Rawlins the famous smuggler; for in it were found several mouldering packages of tea, a couple of ankers of Hollands, and several small bales of Flanders lace, yellow with age and mostly rotten.

In a niche of the chimney of the living-room of the cottage was found a small metal tobacco-box of the Nelson period, with a Neptune in coarse enamel on the lid. Inside were ten spade guineas, and a couple of crown pieces of 1789, the year in which the Revolution broke out in France.

Old Paris is fast disappearing under the mallets, crowbars, and picks of the Parisian equivalent of the "housebreaker." In a house of the Cité Quartier—once a fine hotel of the nobility prior to the Revolution—on its being pulled down to make way for a new thoroughfare were found some interesting relics. In the walls of one of the principal salons had been constructed a narrow stairway leading down below the level of the floor into a small chamber of about two metres and a-half by three metres (6 ft. by 9 ft. 9 in.), and about two and a-quarter metres (7 ft. 6 in.) in height.

In it were found a pewter pot and earthenware plate, a two-pronged fork, and a bone-handled knife of about a century and a half ago. In a small recess was a black domino or mask, a richly chased pistol, a pair of spurs, and a dark auburn wig. Evidently the first and last articles were portions of a disguise.

What was of even more interest, however, was a small crumpled piece of paper, yellow with age and with the ink turned a reddish brown, on which was scrawled in a feminine and unformed handwriting (in French) the following words: "Dearest, Be warned. R., your enemy, is active against you. He has been to Versailles. Perhaps even now he is returning from thence with a *lettre de cachet* signed by His Majesty. I implore you to flee in time. M. de Liancourt would give you shelter. It is impossible to leave Paris. Beware. And waste no time. Eternal devotion. Lucie."

What a world of romance that crumpled, yellowed note was capable of conjuring up!

It is a pity that it was not secured by some collector for the Cluny or other museum. It would appear that the mansion in which it had been discovered was that of the useful M. de Liancourt, who would shelter the prescribed and hunted "Dearest" of Lucie's affections.

In an old house—also in Paris—set in one of the side streets running off the Place de la Revolution not far from where the infamous and terrible Bastille once reared its immense and forbidding height, about thirty years ago was discovered a secret chamber constructed in the roof, where one of the chimney stacks had been artfully "thickened" so as to provide the space required. In it was the skeleton of a man, perfectly preserved, attired in rich—though then crumbling—clothing, of the time of Louis XVI. a rapier still at his side. The door of this chamber was fastened by an ingenious spring-catch which could only be opened from without.

Probably the unfortunate man, whose skeleton was, after some three-quarters of a century, thus revealed to the light and air of the modern city was an ill-fated "aristo" who had concealed himself or been concealed at the time when Parisians were gone mad with a lust for blood, and then had been forgotten as had, many a time, prisoners in the Bastille hard by. There, in that narrow cell-like apartment, constructed in the chimney and with the thick oaken door artfully painted so as to correspond with the brickwork, even to grooves in the wood filled in with plaster to simulate the pointing, he had waited alas! in vain for either food or release until death came and found him wasted away, stretched on the floor with his shrunken face buried almost in his shoulders.

Once again one is in the quarter of the Ile de la Cité, still rich in romance even in this prosaic age.

A house was pulled down to make way for a new street. It was one of the quaint old hotels of the aforetime nobility, with a comparatively modern front.

In it there was found a secret chamber. It was just the house to have one, with narrow back staircases, huge salons, attics in the high-pitched, red-tiled roof, and vast cellars, the latter, perhaps, once giving an outlet on the river itself. The secret hiding-place in this instance was constructed at the back of the fireplace of the main bed-chamber, and was connected with the salon on the other side by a narrow passage-way (about 20 inches wide) in

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THE OLD RED HALL, BOURN (now the Railway Station).

the panelled walls. In the chamber itself was found, as the men engaged in stripping off the beautiful old wood panelling suddenly disclosed it, a white scarf, and a list of names written closely on three sheets of foolscap paper, most of them indistinct from fading of the ink. The yellowish-white scarf at first conveyed no particular meaning, and but for the handwriting and a date at the bottom of the last page, "Juilet 5ieme. 1572," would have borne no special significance. But like a flash there came to the mind of an antiquarian friend, a M. Raoul Castignac, the idea that the faded piece of silken ribbon or fabric which he held in his hand was intended to serve, or had served, as one of the "badges of safety" donned by Huguenots who had been warned of the massacre of August 24 of the same year, and by those engaged in killing the unfortunate victims, estimated at from 10,000 to 20,000 in the streets and houses of Paris alone.

Guy Fawkes' famous Gunpowder Plot, with the meetings of the conspirators in numerous country houses, has given a fine crop of legends to many places. A curious fate has befallen one of the mansions associated with these would-be exploders. The "Old Red Hall," as it has long been styled, at Bourn, in Lincolnshire, was one of the properties of the Digby family. Young Sir Everard Digby of Gayhurst near Newport Pagnell was one of those conspirators, and he suffered for his treason by being hanged, drawn, and quartered. The Old Red Hall was said to have been one of the rendezvous arranged for in the rising which was to have taken place on Guy Fawkes' explosion being successful. Some fifty years ago, when the existing railway was projected through Bourn, the mansion was scheduled for destruction; but opposition was so strong that a slight deviation was made by which, in the result, the Old Red Hall became the railway station for Bourn.

Wardley Hall, Lancashire, is a most dramatic-looking old timbered house, a property of the Earl of Ellesmere, but for many years it became half derelict and was let out to coal-miners and their families. This was once the home of the Downe family; and it is one of those several old houses which have a human skull kept on the premises; together with the usual mystic legend of disasters and disturbances being certain to occur if it be removed. This particular skull reposes in an open niche in the wall of the chief staircase. A popular legend declares it to be that of one Roger Downe, who was killed in a street brawl in London, but as his grave was opened in 1779 and his head was found yet duly on his shoulders, it is clearly not his. Research seems to have solved the riddle, and to prove that it is the skull of Alexander Barlow, son of Sir Alexander Barlow of the neighbouring Barlow Hall. Like the Downes, he was a Roman Catholic. Born in 1585 he was educated for the priesthood at Douai, and secretly exercised those functions in Lancashire, as "Father Ambrose." He was arrested in 1641 and executed on September 10 in that year, his head being impaled on the tower of the old parish church of Manchester. It was afterwards removed by the Downes to Wardley.

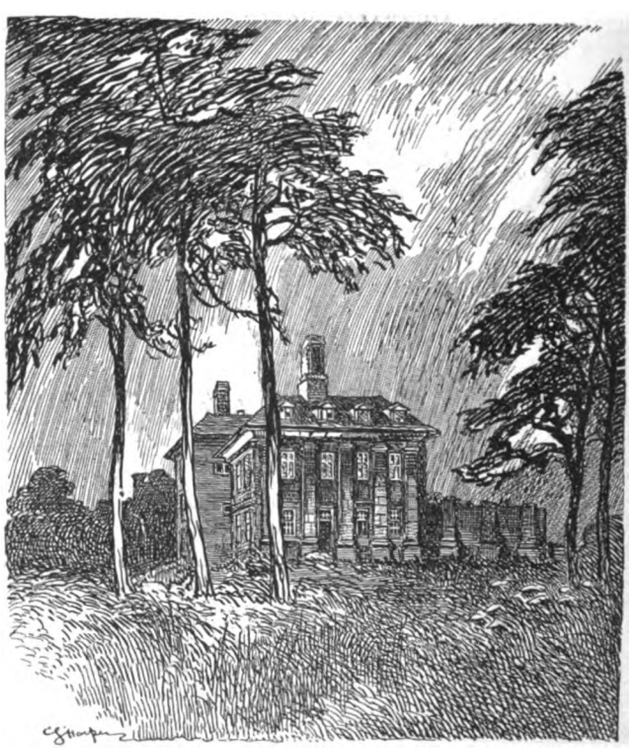
London has not escaped the "march of progress" by which it is the practice euphemistically to disguise the destruction of historical houses and other old-time buildings and landmarks. A few years ago several houses, dating from the time of the Scots' Rebellion of the '45, were pulled down in the neighbourhood of St. James's. In several, discoveries of an interesting nature were made. Coins, bundles of old letters, and in the panelling of one room a list of "Names of those Favourable and probably willing to lend us aid" (to the Jacobite Cause) were found. One can imagine with what delight the discovery of this "list" would have been hailed had one of the Duke of Cumberland's emissaries or spies have been the lucky finder, and how one James Mackie, of Adelphi, in the City of London, and Preston, in the County of Lancashire, would have trembled to know that he figured in the "list," and was known as a Charlie's man in the Government of the day.

A Mrs. Alabaster, of a house which long ago disappeared, but was then on the outskirts of Derby, was mentioned as one likely to lend "two good mares and a sum of twenty-five guineas. Also corn and forage to be given if required."

Let us hope that the good Dame Alabaster did not involve herself and her relatives by gifts of the kind when "Bonnie Prince Charlie's" forces turned back just as they reached her neighbourhood.

A quarter of a century ago, whilst an interesting house was being demolished in the vicinity of Drury Lane, at the back of Kingsway, a veritable priest's hole, dating probably from the reign of James II., or perhaps even from that of Elizabeth, was discovered, constructed in a recess above the ceiling in an angle of the wall of one of the principal bed-chambers. It was approached by a cleverly screened short flight of steps, the entry to which was beneath one of the broad oaken stairs. This, when a spring was pressed by the pulling aside of one of the balusters half-way down the flight of stairs, tipped downwards and inwards, falling flat against the side of the hole.

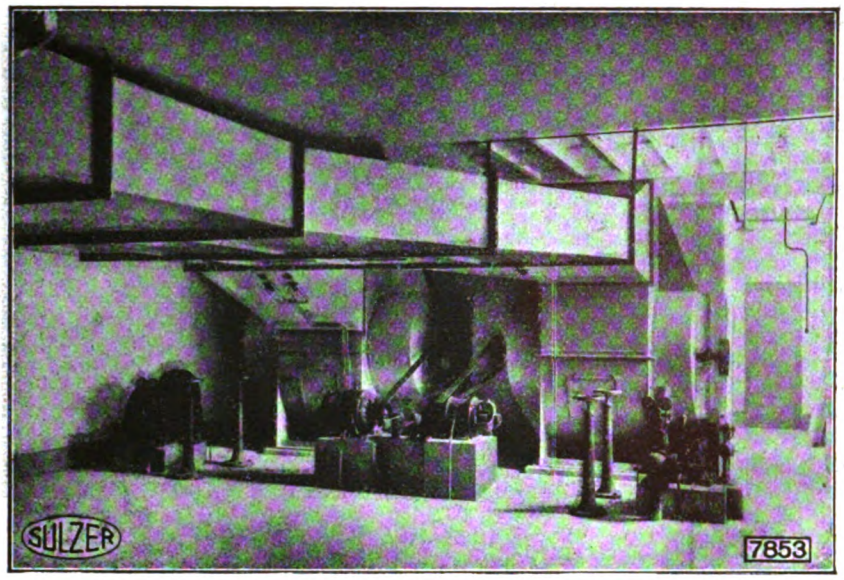
This small chamber, about 8 feet by 4 feet 6 inches by 6 feet, which gained its light and air from a tiny window set artfully behind a low piece of parapet work, no one would discover except they climbed on the roof. The hidden person was fed by means of a tube (when the scent was too hot to permit of the hole being approached by the staircase) constructed in the wainscoating of the



GREAT BAYHALL MANOR HOUSE.

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BISHAM ABBEY.

room immediately above and masked by a piece of the carving.

In the "hole" itself was discovered a priest's hat, a rosary, and a small missal, a cup, and a pewter plate, whilst on the plaster of the wall was scribbled, in old-fashioned Italian handwriting, a series of dates and some verses of religious import. The records were evidently chiefly those made by fugitives. One ran: "Wm. Harrisson jn here I spent Xii daies from 2nd June untill June 14 1689." Another recorded the fact that "I have been for many houres without meat or drink. I fear something may have befallen."

Yet another ran:

God Almightie guard this hous,
From ye wolves which rove around.
Keep Thy people safe and sound,
From ye perils of ye times.

The great highways of England, the great North Road, the Bristol Road, and the other roads to the West have provided incidents upon which novelists do and still can found romances.

It is not unnatural, therefore, that some of the old houses which bordered them, the posting inns, and even some of the ancient manor houses, should have their stories to tell of "Galloping Dicks," Jack Sheppard, and other once notorious highwaymen, rogues, "cut purses," and vagabonds.

Set some distance from the main highway across a Yorkshire moor, not far from Harrogate, stood till comparatively recently an old half farmhouse, half inn, which was reputed to have been the resort of highwaymen working the North Road. When it was pulled down a few years ago a secret chamber was discovered cunningly placed behind the panelling of one of the upper rooms in an angle of the wall, which, upon being opened, disclosed a gruesome sight. Propped up against the wall in a half-sitting, half-kneeling position was the skeleton of a man dressed in the riding attire of the period (about 1780), with a pistol in his belt and another on the floor by his side. The latter had been discharged, and part of the man's skull was blown away and the hair much scorched. Fallen from the pocket of his now rotten riding coat were two gold watches, a pinchbeck snuff box, two gem rings, and a half-score of guineas of the year 1776.

The story was easily read. Here was evidently all that remained of some bold gentleman of the road, who for some reason or other had in a fit of despair, or because he had been left to starve, blown out his brains with the pistol which lay beside him on the floor.

We learned that the old house had for many years—how long no one could say—borne the reputation of being haunted by a highwayman's ghost. The troubled spirit of one known as "Black Dick." Now the mystery was solved, and the mortal remains of poor Dick, trapped at last by Fate, and not by catchpoles or sheriff's officers, were brought to light.

But it is not always gruesome finds that old houses provide when they are being dismantled and pulled down. Not long ago, at Stratford-on-Avon, Warwickshire, a suspected (but till then undiscovered) secret chamber was disclosed in an old-time house which was found to contain, not skeletons, pistols, masks, or articles for the celebration of the mass, but a number of children's toys and dolls dating from the reign of Queen Anne. How they got there or why they were put there who could say? Perhaps the children of long ago had, whilst at play, unwittingly touched the secret spring which opened the hidden chamber, had strayed into it with their toys, or had made it a cupboard, had closed the panel, and no one afterwards could find the secret spring, which was cunningly hidden in the throat of a faun in the carved moulding of the wainscot.

From time to time coins innumerable, skulls, silver plate, documents, packets of letters, jewellery, and other similar objects are disclosed in the walls, underneath the floors, and in recesses of ancient buildings. Often the silver-plate, which might be of almost priceless value because of its age, is shared out by the workmen who find it, and cast by some "receiver" or the men themselves into the melting-pot, when its value disappears.

This recalls the curious story attaching to the mansion called Bisham Abbey, beside the Thames near Marlow. It is a so-called "haunted house," with the reputation of being frequented by the ghost of Lady Hoby. The house, chiefly an Elizabethan remodelling of the domestic portion of a once stately abbey, was the residence in the reign of Elizabeth of Sir Thomas Hoby, who died in 1566 in Paris. His widow married in 1574 John, Lord Russell, who died in 1584. She died in 1609, aged eighty-one. She was a woman of remarkable scholastic attainments, and wrote Greek and Latin verse. The story has long been current of her having

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THE

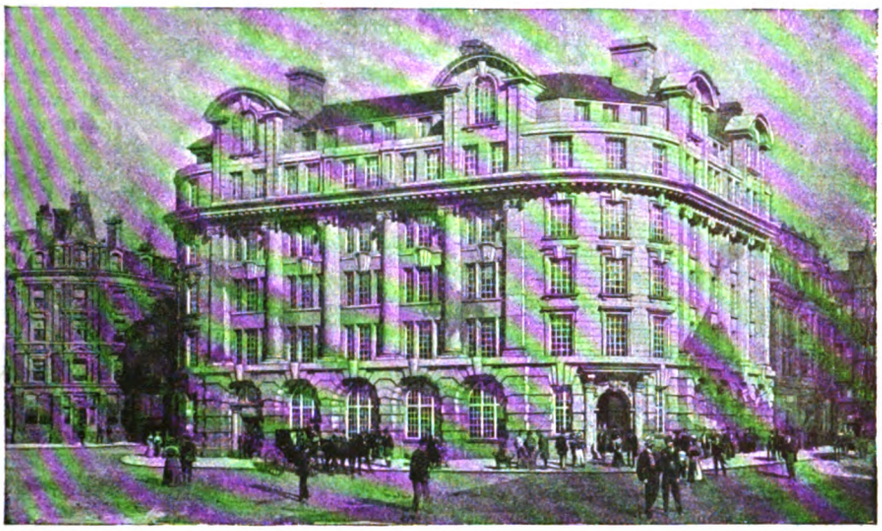
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beaten her little son to death, for the misdemeanour of having blotted his copy-books; and tradition declares her unquiet spirit to haunt the place. Many years ago, as in some way a confirmation of the story of the blotted books, "a packet of antique copy-books was discovered, pushed into the wall between the joists and skirting of one of the rooms. Several of these, on which the name of Hoby was written, were covered with blots." Bisham is an "unlucky house"; one of those supposed to bring upon its owners the curse attendant upon those who own property taken by duress from the church. Son is said never to succeed father in the ownership; and the Vansittart-Neale family, to whom Bisham belongs, have fully experienced this.

Sometimes an old-world tragedy is disclosed which it is comparatively easy to reconstruct.

One such was revealed a few years ago when a house was being demolished in the north-west corner of Lincoln's Inn Fields. There in this old Jacobean house was disclosed by the pickaxe and crowbars of the "house-breakers" a small secret hiding-place. On the floor of it lay what was at first taken to be the skeleton of a slight man or youth. Embedded in the breast-bone was some nine inches of steel, evidently a part of a rapier. The figure was dressed in the style of George III.'s time. On the finger of the left hand was a small diamond ring, and beneath the crumbling frilled shirt was a chain and a locket, containing a small miniature of a remarkably handsome young man. Medical evidence established the fact that this "poor figure of a man" was no man at all, but a well-grown young woman of from twenty to twenty-five years of age, who had evidently been killed by the thrust of a rapier, possibly in a duel, and whose body had been afterwards hidden in the narrow chamber in which it was discovered.

What a romance of love, sudden disappearance, and mystery was here suggested! How the handsome young man of the miniature must have hunted for his missing inamorato or perhaps relative! What a hue and cry there must have been, for the attire worn was that of a wealthy young man of the period, and the ring upon her finger was a valuable one! The mass of golden hair, fastened with several gold pins in a loose and somewhat disarranged coil, was still beautiful and luxuriant. Perhaps the fair owner had been entrapped and had been killed; perhaps she came to this one-time fashionable quarter after a masquerade. Perhaps, on the other hand, she had come to pick a quarrel with a seducer. Who knows? But the story was there, though neither the ingenuity of man nor time could unravel it.

The "Architect" Fifty Years Ago.

JANUARY 13, 1872.

MR. STREET'S DEFENCE.

Mr. Street, after an immense deal of provocation, has, at last, couched a lance in his own defence. Since his designs were accepted four years ago, he has been the constant object of attack by jealous or querulous members of the profession, who have, in most cases, concealed themselves under mysterious initials or equally incomprehensible *noms de plume*. But at last disguise has been cast aside, and when it has become evident that the Government did not mean to break faith with Mr. Street several of his opponents have openly declared themselves. Prominent among these has been Mr. Fergusson, and it is to him that Mr. Street this week addresses a pamphlet which we can only call his defence against the charges which have been brought against him. It is but natural that Mr. Street should be excessively annoyed at the criticism to which his work has been subjected, for, in many instances, it has been neither kindly nor just. For this reason we overlook any trifling asperities which have crept into this brochure, and without further comment allow it to tell its own tale. Mr. Street says, with regard to the recent essay in *Macmillan*:—

In this paper there are various statements in regard to me, which for convenience I will state and answer as shortly as I can, *seriatim* and without further preface:—

I. "One fine morning the Government, worried and perplexed by the rival claims of the competing architects, awarded to Mr. Street the building of the Law Courts, because his design was the worst—a perfectly competent tribunal having awarded him only three marks in the competition, while it had assigned Edward Barry forty-three."

II. "It is the accuracy of imitation pervading every detail that makes Mr. Street's design so perfectly intolerable. According to this Joshua of architects the sun of art stood still when Edward III. died in 1377, and has not moved forward since that time. Hence the lawyers of the nineteenth century must be content to lounge in vaulted halls, with narrow windows filled with painted glass, and so dark that they cannot see to read or write in them. They must wander through corridors whose gloom recalls the monkish seclusion of the Middle Ages. They must sit on high, straight-backed chairs, and be satisfied with queer-shaped furniture, which it is enough to give one the rheumatism to look at;" and so forth.

III. "Mr. Street boasts that his design is a real fac-simile of the monastic or domestic institutions of the Middle Ages."

IV. "Mr. Street's central hall is useless inside. It darkens the light and renders the courts and passages round it noisome and inconvenient."

V. "The inconvenience and inappropriateness of the new Law Courts may, like the frightful example of the itinerant preacher, serve as a warning, and prevent the repetition of such Mediæval productions."

[Mr. Street then proceeded to answer these five statements.]

Modern Industrial Art in the Victoria and Albert Museum.

The British Institute of Industrial Art, of which Sir Hubert Llewllyn Smith, G.C.B., is Chairman, has arranged an Exhibition of Present-day Industrial Art, to be held, with the sanction of the President of the Board of Education, in the North Court of the Victoria and Albert Museum, from January 16 to February 25, inclusive.

The endeavour of the organisers is to bring to the notice of the public the latest productions of both manufacturers and craftsmen. The exhibits are chosen by expert selection committees in the various divisions, and consist of the following main sections—textiles, metal-work, ceramics, printing and allied industries, and furniture, the last named being displayed as a series of rooms.

It is felt that this opportunity of inspecting a wide range of British artistic products of to-day in the midst of the national collection of examples of industrial art of the past will afford new opportunities not only to manufacturers and designers, but to the purchasing public.

On the termination of this Exhibition on February 25, the collections will be sent for further exhibition to Bradford, Birmingham, and other important industrial centres.

Admission is free, the hours of opening being 10 a.m. to 5 p.m. on weekdays, and 2.30 to 5 p.m. on Sundays.

The wills of three prominent contractors have been proved during the past week. The largest estate is that left by Mr. C. J. Wills, managing-partner of Messrs. Price, Wills, & Reeves, which was of the gross value of £355,585. Next comes that of Mr. S. Kavannagh, founder of Messrs. Stephen Kavannagh & Co., which amounts to £68,017. Mr. Peter Tyson, of Waterloo (Lancs), chairman of Messrs. Tysons (contractors), Ltd., left gross estate value of £21,564. The will of Mr. J. W. Connon, F.R.I.B.A., of Leeds, has been proved at £4,791.

H.R.H. the Duke of York, K.G., inaugurated on Tuesday last the work of building the British Empire Exhibition, to be held next year from April to October in Wembley Park, by cutting the first turf on the site. Messrs. John W. Simpson and Maxwell Ayrton are the architects of the proposed buildings, which will include a great hall for the display of products and manufactures of Great Britain, five halls for exhibits from the Dominions and Colonies, a big sports arena, and a banqueting hall. There will be also two main courts, the Empire Court and the Dominions Court. Mr. E. O. Williams has been appointed the consulting civil engineer to the exhibition. The contractors for the work, which is expected to cost about £1,500,000, are Sir Robert McAlpine & Sons.

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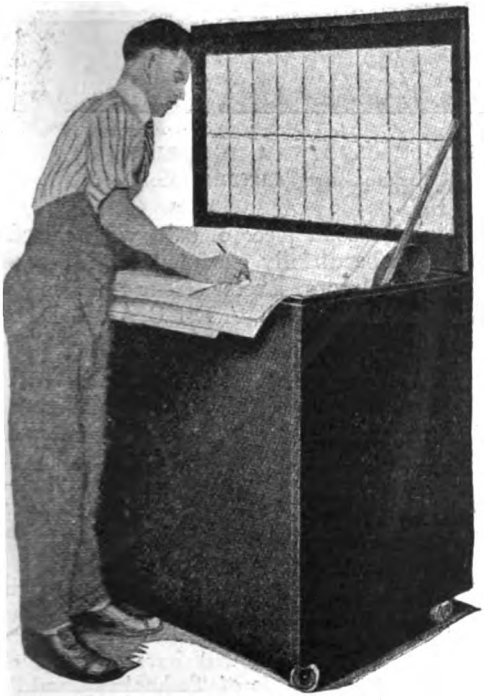
January 13th, 1922.

Gentlemen,

We respectfully draw your attention to the fact that the Art Metal Construction Company, of Jamestown, New York, have now opened their own Offices and Showrooms at the above address, and to avoid confusion in the minds of the public, desire it to be known that they are not directly or indirectly connected with the Art Metal Construction Company, Ltd., associated with Roneo, Ltd., or with any other Company of similar name.

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The R.I.B.A. Examinations.

THE FINAL: ALTERNATIVE PROBLEMS IN DESIGN.

Instructions to Candidates.

1. The drawings, which should preferably be on uniform sheets of paper of not less than Imperial size, must be sent to the Secretary of the Board of Architectural Education, Royal Institute of British Architects, 9 Conduit Street, W., on or before the dates specified below.

2. Each set of drawings must be signed by the author, and his full name and address, and the name of the school, if any, in which the drawings have been prepared must be attached thereto.

3. All designs, whether done in school or not, must be accompanied by a declaration from the Student that the design is his own work, and that the drawings have been wholly executed by him. In the preparation of the design the Student may profit by advice.

4. Drawings for subjects (*a*) are to have the shadows projected at an angle of 45 degrees in line, monochrome, or colour. Drawings in subjects (*b*) are to be finished as working drawings. Lettering on all drawings must be of a clear, scholarly, and unaffected character.

Subject LXI.

(*a*) A MOTOR GARAGE.—The building is to be erected on a level corner site in a large town. Dimensions of site: 200 ft. by 100 ft. The garage to be on three floors—basement, ground, and first. The main access from the street for the automobiles to the basement and first floors to be by means of sloping ways, of a maximum incline of 1 in 10.

The ground floor to be level with the street. The object of this programme is to provide a maximum floor area with as few constructional supports as possible.

In addition to the actual space required for the storing of motor cars, a covered space on the ground floor to be provided for cleaning four large cars simultaneously, a repair shop for four cars, a lift for damaged cars, two offices with lavatories, etc., a show-room for accessories.

Drawings.—Plans of 2 floors: at $\frac{1}{8}$-in. scale.

Elevation and section showing construction at $\frac{1}{8}$-in. scale.

Detail with section through one of the outside walls showing construction at $\frac{1}{2}$-in. scale.

(*b*) A BUILDING FOR AN ARCHITECTURAL SOCIETY.—Will be situated in a main street, and have a frontage of 80 ft. Accommodation required:—

Ground floor.—Entrance hall, secretary and administrative offices, council room, committee room.

First floor.—Meeting room (for lectures and exhibitions), with anteroom, president's room, and writing room.

Second floor.—Small reference library, with store-room, librarian's room, committee room.

Lavatory and cloakroom accommodation to be provided in basement and on second floor.

Kitchen, etc., and caretaker's quarters—with separate stairs—to be provided either in basement or attic. Heating apparatus to be in basement.

Drawings.—$\frac{1}{8}$-in. scale plans, sections, and elevation. $\frac{1}{2}$-in. detail of entrance, showing interior and exterior details.

Subject LXII.

(*a*) A new opening in a deer park wall (stone 8 ft. high) is to be made for carriage gates—provide lodges for the ranger of the park and for the married gatekeeper.

Drawings.—$\frac{1}{8}$-in. scale plans, elevation, and section, and $\frac{1}{2}$-in. scale detail of gate and piers and one lodge.

(*b*) A level island site in a country town, on which is to be built a row of small houses for gentlepeople of small means. The block to consist of 6 or 7 houses, each house having an average frontage of 24 ft. The accommodation of the houses may vary from 2 to 3 sitting-rooms, from 4 to 6 bedrooms, and 1 or 2 bathrooms. The kitchen offices may not be placed in a basement.

Drawings.—Complete ground plan; bedroom floor plans (these need not be duplicated); 3 elevations, 1 section, all to $\frac{1}{8}$-in. scale; block plan showing lay-out of gardens—the front garden is to be common to all the houses, without any fencing or gates, to $\frac{1}{16}$-in. scale; $\frac{1}{2}$-in. scale section and part of an elevation.

Subject LXIII.

(*a*) A CRICKET PAVILION for a county ground, with accommodation for, say, 300 spectators, lavatories, etc.; lavatory and changing room for amateurs and professionals, scoring box, luncheon room, small kitchen and staff room, committee room, etc.

Drawings.—$\frac{1}{8}$-in. scale plans, 2 elevations and sections, $\frac{1}{2}$-in. details.

(*b*) A SPORTS CLUB.—This club, which would be situated in a large garden, would be designed to accommodate wealthy members interested in sport.

It would be situated on two floors, and the accommodation required would be as follows:—

Ground floor and semi-basement.—Entrance hall, porter's lodge, vestibule, staircases, cloakrooms and lavatories, swimming bath for displays and competitions, with dressing-rooms, linen-room, and attendants' room (the swimming bath to be 100 ft. by 35 ft. and 8 ft. 6 in. in the deep end), a large gymnasium, 3 squash racquet courts, 6 small private dressing rooms (each containing bath and wash basin), staff and goods entrances, service staircases, etc.

First floor.—Large hall (for boxing displays and theatrical performances), green room and dressing room, small restaurant with kitchen and services, separate cloakrooms and lavatories for ladies and gentlemen, billiard room; caretaker and attendants to be lodged in an attic storey.

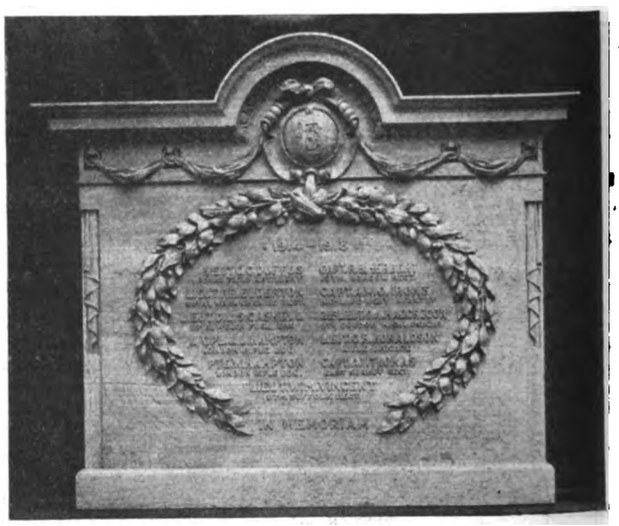
The area in the park reserved for this building not to exceed 200 ft. by 120 ft.

Drawings.—Plan of ground floor, plan of first floor, principal elevation, section—$\frac{1}{8}$-in. per foot.

Dates for submission of Designs in 1922.

	Subject LXI.	Subject LXII.	Subject LXIII.
United Kingdom ...	February 28	April 29	June 30
Johannesburg ...	April 29	June 30	August 31
Melbourne	May 31	July 31	September 30
Sydney	May 31	July 31	September 30
Toronto	March 31	May 31	July 31

The Epsom Golf Club War Memorial.



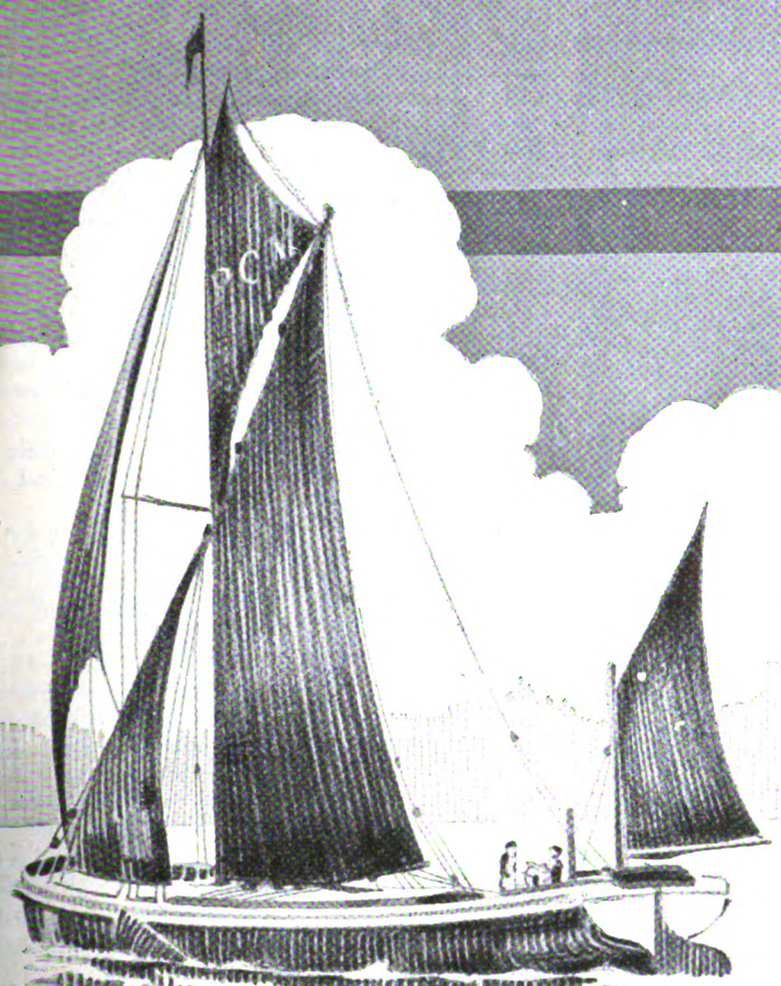
EPSOM GOLF CLUB WAR MEMORIAL.
Capt. W. H. HATCHARD-SMITH, A.R.I.B.A., Architect.

This memorial is of a solid piece of oak, with raised letters. The carving is beautifully executed by Messrs. Harry Hems & Sons, sculptors, Exeter, from the design of Captain W. H. Hatchard-Smith, A.R.I.B.A., 6 Duke Street, Adelphi, W.C.

The Manchester City Council has accepted the tender of the Mannesmann Tube Company, Limited, for the steel piping for waterworks purposes. The price quoted—£426,000—was stated to be between thirty and fifty per cent. lower than any other tender. The contract will be carried out at the Newport works of the company.

Two distinguished young French architects, Albert Ferran and Jean Jacques Haffner, both of them winners of the Grand Prix de Rome, have accepted invitations to come to this country to teach. Mr. Ferran will have charge of design at the Massachusetts Institute of Technology, while Mr. Haffner will hold the corresponding professorship at the School of Architecture at Harvard. The departments of Harvard and the Massachusetts Institute of Technology engage in "conjunctive problems" in architecture.

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New Books.

"Reinforced Concrete Tables." By "Concord." Newcastle-on-Tyne. (Andrew Reid and Co., Ltd.) 2s. 6d. net.

This is a small, a very small, work, less indeed than twenty pages in all, including tables and diagrams, being a handbook for engineers, architects, and builders for calculation of lintels, columns, floor beams, and slabs in reinforced concrete. In its inception the author has done well not to give extreme instances, but to proceed upon the basis of economical calculations for everyday practice.

We cannot agree with him where he remarks on the first page that "an aggregate suitable is at hand in almost every locality"; in fact, he does not agree with himself, for on the very next page he controverts this view. And further, to advocate the use of concrete, where unskilled labour is employed is inviting trouble, despite "close supervision." And again further, there is, in fact, an advantage in the sand being sharp in preference to "round," as fewer voids will occur. The index needs careful revision, and other points might be criticised, but we recognise that there is little doubt that the handbook will be welcomed by a section of the technical public, perfectly competent to differentiate between the points of merit and less merit.

"Practical Letter Book." Edited by Arthur S. Jennings, F.I.B.D. (London: The Trade Papers Publishing Co., Ltd.) 15s. 9d.

It would be more approaching correctness to say that this book contains several hundreds of letters, &c., than such a number of alphabets, as these do not apparently amount to more than about one hundred, exclusive of numerals, monograms, &c. The illustrations are prefaced by four pages of text, descriptive of the general method of writing; but all this kind of "literature" has been far too much indulged in to serve any practical requirements; at any rate, this is the reviewer's opinion. And, besides, many of the so-called alphabets are really not mutually distinguishable, as they are merely surface variations upon similar outline forms.

And again, who is it that will purchase such a book as this? Most improbable is it that any architect will find in it any appeal to his requirements; here and there show-card writers and sign-painters, and perhaps some decorators may order a copy. This is not intended as a slur upon the particular work.

But the alphabets shown in this book have one very great merit, almost without exception, and that is, that they properly represent the contouring of the letters, which often cannot be predicated of the writing indulged in by architects *in esse* and *in posse*.

"Simplified Methods of Calculating Reinforced Concrete Members." By W. Noble Twelvetrees, M.I.Mech.E. (London: Sir Isaac Pitman & Sons, Ltd.) 5s. net.

The simplification of the methods of calculating reinforced concrete work generally is very desirable, and the author has presented the matter in this book in a clear and concise manner. This is the second edition, and it is a distinct improvement on the first edition as it has been enlarged and the notation throughout is in accordance with the New Standard Notation approved by the Concrete Institute in April 1920. The text covers simplified methods of calculations for beams, compression members, and members subject to combined stresses, while several labour-saving diagrams are included which are interesting. Examples of the formulæ presented by various authors are given, together with the method of transcribing these into formulæ of standard symbols, and the same value is then given in standard symbols and standard form, and this affords an excellent illustration of what would be accomplished by a more general standardisation by writers on the subject. The book is one which should be acquired by all those dealing with reinforced-concrete calculations.

"Home Carpentry and Cabinet Making." By F. W. Lewis. (London: George Routledge & Sons, Ltd.) 3s. 6d. net.

Some fortunate people are born "handymen," just as others are born to be good at mathematics, games, or other important side issues in life. The predestined carpenter may or may not find much of value in these 170 pages; but the ordinary man will unquestionably learn a great deal from them. The book is, however, rather advanced, inasmuch as it presupposes the possession of an outfit which would only belong to those who took their efforts seriously. Most of us are content if able to make a fair job of simple repairs about the house, and do not aspire to constructing fireplaces, steps, or even knife-boxes. We are prepared to believe that "if the amateur can saw wood properly, plane it true, handle a chisel efficiently, and has a good knowledge of joints, he will be able to make practically any article in a workmanlike manner." The book should help him materially towards these accomplishments. It is written throughout in very simple language, and in consequence it makes the many operations described appear easy.

"Architectural Office Administration." By Francis Lorne, A.R.I.B.A. (London: Technical Journals, Ltd.) 5s. net.

This little volume has been prepared for the guidance of the young architectural student who wishes to grasp the business side of his profession, and the material has been collected by the author in various offices in this country and the United States. Several forms are given to illustrate the methods of keeping records and presenting particulars, and some useful information is given under the four sections into which the book is divided. It will, of course, be quite impossible to satisfactorily learn the business side of the profession by the perusal of one or many books on the subject, as actual experience is quite essential; but the volume should be useful as a guide to the assistant who is looking forward to some share in the responsibility of office management.

"Builders' Accounts and Office Supervision." By Hardy Keen. (London: Crosby Lockwood & Son.) 5s. net.

It is very important to have a sound and practical system when keeping the accounts of a builder's business, and the author of this volume presents all the necessary information to enable such a system to be instituted. The methods to be employed are clearly expressed, and numerous examples, based on forty years' experience in the building trade, are given, which should enable the reader to fully appreciate the necessity and importance of practical accountancy. The keeping of accurate costs in the building trade is often a difficult matter, and any volume which efficiently deals with this question is likely to prove a welcome addition to the practical builder's library.

"Practical Structural Design." By Ernest McCullough, C.E. New York. (U.P.C. Book Company Inc.)

This is the second edition of this volume, and it has been prepared especially for readers who have a limited knowledge of mathematics, all the text being written in simple language which can be followed by the average student, and for this reason it should form a good text-book for class purposes in America. Its use is likely to be somewhat limited in this country, as numerous references are made to American publications in connection with further particulars on many subjects and for standard practice, and these publications will not be available to the average student here. The notation employed is also obviously not in accordance with the practice in this country, and thus it will be rather difficult for the beginner to reconcile the different formulæ with those in other works. The chief feature of the volume will be found in the clear and simple explanations of the principles that must be grasped at the outset by anyone taking up the subject of structural design, but which are so often dealt with by authors in high-flown language that is beyond the comprehension of many students.

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Running Amok.

WE had always thought of Sir Charles Ruthen as possessing in an unusual degree shrewd common sense pleasantly tempered by kindness. He occupied an important position in the public service during the war, and his colleagues were pleased and gratified that those services should be recognised by the administration of the day. It may be pointed out that such recognition was not given in view of his prominence in the profession, but in respect of services rendered which required the exercise of business qualities, tact, and energy during the period of crisis.

We say this as Sir Charles has for some unknown reason which we cannot fathom thought fit to run amok, and his address given before the Society of Architects can only be characterised as an insult to the profession to which he belongs and to which he shows himself disloyal.

Had he been addressing an audience as a politician he might be understood, because the politician frequently makes statements which his audience is too ignorant to challenge, or if they do he escapes, covering his retreat by emitting a stream of irrelevant platitudes in the place of the squid's stream of dye. The politician can in a word play with truth and with facts in a manner which would earn condemnation for a business or professional man. This mistake was to make this address before an audience which has some knowledge of the facts. We give a full report elsewhere, as it amply justifies the comments we have to make.

Sir Charles's remarks on the subject of advertising are neither very original nor profound, but are not in any case of the first importance. All of us know that men usually take certain methods to advance their supposed interests, and that these methods vary with individuals and circumstances. Whether we call this "advertising" or not will depend on the definition assumed. If what are in reality harmless methods of utility to many are forbidden by a conservative code of etiquette we may be sure that such a code will be more honoured in the breach than in the observance. We are inclined to attach little importance to the campaign now being carried on for securing more recognition for the profession, because what will help all of us more than anything else is to show our clients in practice that we are serving their interests, and that with our help they can obtain what they want. If we can do this we shall need no advertisement, if we can do it in such a manner as to satisfy cultivated taste we shall advance the general cause of architecture, but if we cannot do these things a tornado of tub-thumping at professional meetings and a plethora of newspaper puffs will not help us.

We now come to the really astounding charges made by Sir Charles against the profession, and the equally unfounded eulogy pronounced on the action of the State. It is difficult to pick out portions of a paper so offensive in its taste, but we will quote a few passages :—

> I would wish the members of the profession very seriously to consider whether sufficient time has not already been spent resting contentedly upon the feather bed of the art; and that the profession has forgotten, if, indeed, the lesson was ever learnt, that the people live in houses and not upon them. The propagandist and housing reformer preached for many years before the outbreak of the war a new system of area development and a new system of house planning. The architect—that is to say, the gentleman who works entirely for fees, came into the thing just after the signing of the Armistice.

We would ask whether Sir Charles has ever studied the immense mass of finely conceived, well-planned, and carefully thought-out design which has been produced by architects both in this country and America during the last thirty or forty years. If he has he will be forced to the conclusion that what is chiefly wanted by many in the profession is more efficient education to enable the rank and file to live up to the higher level achieved by the more distinguished members of their confraternity. It would be well if the speaker had considered that many architects during the war found their occupation gone, were reduced to straits, and it is neither just or generous to accuse them of "working entirely for fees" after the conclusion of the Armistice. Most of them had not obtained important positions in the service of the State during the war, and many of them had no private means, and returned to find their connections gone. Sir Charles eulogised the action of the State :—

> Did he assist to any appreciable degree those who had preached for years, or, in fact, the State which was faced with the gigantic task of overtaking the enormous arrears in housing for the people, or did he forget his responsibilities to the State, if, indeed, he ever fully appreciated them, and his duty to architecture, and allow his pencil to run wild in the dream of the artistic home, and did he forget that the bankruptcy of the State would be the inevitable result? All these things require serious and concentrated study. The architect must face the prime responsibility of the financial disaster of the great State housing scheme.
>
> I am loath to blame the members of my own profession for that which is not rightly theirs, but a careful review of the whole of the circumstances surrounding this great effort upon the part of the State must reveal a carelessness and a culpability of the most suicidal form.
>
> No greater, and no finer effort to grapple with one of the greatest of social problems has ever before been made by any country in the history of the world. No more magnificent conception could have been possible. This colossal effort was made when the finances of the country were well-nigh the point of exhaustion; but those responsible for the launching of this great scheme designed to produce half a million homes in a few years had every reason to be proud of their offspring.
>
> Those at the head of this gigantic undertaking I do not acquit of all blame for the difficulties that arose during the putting of the plan into execution. Some of the initial steps taken without a careful scrutiny of the forces, dormant though they were, waiting to waylay the unwary, were faulty, and provided the opportunity to all those who considered any State effort fair game for plunder; and that opportunity was taken advantage of with celerity.

It has been proved *ad nauseam* that if the State was faced with a gigantic task it was mainly because, in a spirit of recklessness, it had destroyed the machinery in 1910 by which the needs of the people had been met, and destroyed it in despite of clear

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warnings. The bankruptcy of the State so feelingly referred to was inevitable directly the Government interfered with the laws of demand and supply. The effort of the State was not "great" or "fine," but absurd from the start, and, like other impossible chimeras, has had to be abandoned.

We admit that many designs have been produced which were not sufficiently economical, but many, again, have been carried out which were. Again, if extravagant houses have been built, why did not the all-wise State officials refuse to sanction them?

We know many architects who have carried out housing schemes, but we do not think they have been extravagantly paid for their services. If they have been, should not the all-wise State official again have seen that the public were not victimised?

We have no doubt that in certain cases contractors have profiteered out of housing, but if they have done so, again why has not the all-wise State official been a better guardian of the people's interests?

On the other hand, a very large number of architects and contractors have told us that they did not wish to touch housing, and that they looked forward to the day when the question would be finally disposed of.

We will give one more quotation from the paper :—

Housing provision for the people necessarily will have to be continued. Exactly how is not at the moment a matter I care to discuss. Houses must be provided in sufficient numbers, and I sincerely trust that the great national effort, so far as it has been carried into effect, will guide and control the methods of house-building in the future. Whether architects in the future will be engaged to the extent that the profession hoped and expected is another matter.

Is there room for proper and efficient architectural intervention in a proper and economic provision of housing for the people?

Certainly there should be, and it is the duty of the architect to the State to formulate proposals whereby the architect comes in as part of economic national housing.

From the above it would seem that Sir Charles Ruthen, whom we have heard express the hope that he might be the last Director of Housing, is reconsidering his position, and is perhaps even now devising with the Minister of Health some new Governmental nostrum. Housing was provided without cost to the State up till 1910; the State has failed to substitute for the natural automatic methods of the past anything better; the country is impoverished and overtaxed to make good the errors of ministers, not, we claim, because architects have failed, but because the State in its madness has attempted the impossible.

It would be appropriate and fitting that one who has such a wealth of criticism and condemnation of his colleagues should come before them showing the tangible thing they have missed, but so far we only remember Sir Charles's advocacy of wood-framed rough-cast buildings of a very ordinary type. He must forgive us if we say that we do not think he has contributed any actual proof that he has found an actual solution whereby every man can be comfortably housed at an economical rate which he is willing to pay.

Meanwhile we suggest that he has one clear duty. Let him sever his connection with the profession, the members of which he evidently despises and whom he insults, and let him devote his talents to that political arena where rhetoric, and not fact, is in request. He says he is "too hardened to be hurt by hard thoughts or bitter comments." We are deeply disappointed that one of whom we thought well should have spoken with so little reason or justification. Just criticism does good; unjust criticism and untrue statements will not help any cause in the long run, and must evoke merited resentment.

Illustrations.

THE CARNEGIE FREE LIBRARY, DUNDRUM, DUBLIN. R. M. Butler, Architect.

This little public library was erected on a site adjoining the village of Dundrum, co. Dublin. The grant was a very limited one, and the problem involved meeting the requirements of the local authorities, who particularly desired to include a lecture and concert hall as large as possible, and at the same time complying with the standard regulations as to libraries, laid down by Mr. Andrew Carnegie when making grants for libraries. The ground floor has been planned to satisfy Mr. Carnegie's views, particularly in regard to effective supervision by the librarian, who is placed centrally, the whole of the upper storey is devoted to the lecture hall.

The architectural treatment is a very simple adaptation of the neo-Grec, the exterior being finished in smooth cement stucco. The walling is of County Dublin granite. There are no permanent internal walls; all partitions are glazed and movable.

The architect was Mr. R. M. Butler, F.R.I.B.A., and the contractor Mr. George Bower, Ballybrack.

THE CARNEGIE FREE LIBRARY, MILLSTREET, Co. CORK. R. M. Butler, Architect.

This public library was erected on a rather pleasant site surrounded by fine old trees within the MacCarthy O'Leary demesne, which is just at the head of the little town of Millstreet. The grant was a very limited one, and the problem involved meeting the requirements of the local authorities, who particularly desired to include a lecture and concert hall as large as possible, and at the same time complying with the standard regulations as to libraries, laid down by Mr. Andrew Carnegie when making grants for that purpose. The ground floor has been planned to satisfy Mr. Carnegie's views, particularly in regard to effective supervision by the librarian, who is placed centrally, the whole of the upper storey is devoted to the lecture hall. Mr. Carnegie gave his sanction to this arrangement.

The architect was Mr. R. M. Butler, F.R.I.B.A., Dublin, and the contractor Mr. Daniel Hayes, Fermoy.

The materials used were local rubble limestone for walling, pebble-dashed outside, with heavy small grey-green slates. The internal partitions on the ground floor are all movable and glazed for supervision, no permanent internal walls being permitted by Mr. Carnegie. No sanitary arrangements, other than lavatory basins, were provided inside this building, as in practice it has been found that such are undesirable in rural districts or small towns; as in practice, they become public conveniences.

ALL HALLOWS CHURCH, LOMBARD STREET, LONDON. From Sketches by C. G. Harper; and a scale drawing.

In view of the uncompromising opposition which has manifested itself to the proposals of the Bishop of London's Commission, we feel it would interest some of our readers to give illustrations of one of the churches whose fate has been under discussion. We accordingly give an exterior and interior view, as well as a reproduction of the scale drawing given in Bell & Clayton's "City Churches" and a photographic view published in

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THE INTERIOR OF ALL HALLOWS, LOMBARD STREET. From the L.C.C. Handbook on the Nineteen Churches.

the County Council's recent handbook on the nineteen churches recommended for entire or partial demolition by the Commissioners. The photographic view shows far more than can be seen with the eye, as a long-exposure plate always does, and it was only possible to give the general view by using all the resources of artificial light. A careful examination of the scale drawings will, however, prove to anyone that neither the interior or exterior possess any distinct merit of design. We have been told that work-girls use the church for rest in the interval of time between their arrival in the City and the opening of the offices in which they work. We suggest that either St. Edmund, King and Martyr or St. Mary Woolnoth would serve this need equally well, and that the very beautiful woodwork of the church could be better appreciated were it placed in another church of the same period. It does not, on the merits of the case, appear to be reasonable to refuse an offer of £500,000 for this site, which would presumably mean an income of £30,000 a year to the owners. We should say that three other churches—St. Stephen, Coleman Street, St. Clement, Eastcheap, and St. Katherine Coleman —stood in exactly the same category of merit, while some of the others we mentioned last week are of rather greater interest, though not sufficiently so as to justify their retention on grounds of æsthetic merit. It seems a misfortune that this subject should not have been discussed more temperately, for if it had been a compromise would have been found between the destruction of nineteen churches, many of which we should greatly regret, and what seems to be the useless retention of some of them. With the object of emphasising what we believe to be the reasonable compromise in the matter we have given these illustrations, and should appreciate the opinion of our readers whether their views agree with our own or not. Had historic buildings been preserved in every age the result would have been a loss rather than a gain to the cause of art, and there seems a danger that if the views of some are to prevail preservation of buildings may result in loss rather than gain to the community. Assuming that out of the proceeds of the sale of All Hallows ten churches were built where they are needed by an architect such as Mr. G. Gilbert Scott, would not our descendants in 200 years' time be gainers rather than losers by our action?

Notes and Comments.

The Event of the Week.

The event of the week has undoubtedly been Sir Charles Ruthen's attack on his colleagues. It would be kind to describe this as being a blazing indiscretion, for it is shameless in the absolute failure to recognise that mankind still has some small regard for truth and decency. Unless it is a sign of mental aberration, it can only be the prelude to a political move of a character we can dimly surmise. It is well known that the Ministry of Health and the Office of Works struggled to secure the administration of the National Housing Scheme, and that the former department triumphed. It is also known that Sir Alfred Mond, as head of the Office of Works, was always anxious to enlarge the scope of that body's activities. Their legitimate field of operations is the upkeep of Government buildings, but it has been attempted to show that the department's architects should, in the supposed interests of economy, design new buildings for public purposes. During the war the swollen ranks of the Office of Works carried out an immense number of war buildings and housing schemes like Roe Green connected therewith. The bureaucracy so enlarged and reinforced did not intend, if they could help it, to reduce the numbers of those employed or to limit the field of their activities, and would have swallowed up National Housing and any other small items they could. When Sir Alfred Mond was installed as Minister of Health the indications were that he meant to reverse his predecessor's policy and wind up what had proved to be a costly failure. But a way was always left open, and we were told that the capacity of the building industry deemed it inadvisable that further housing schemes should be approved until building costs were lowered. Building costs are now lower, and it cannot be said that Sir Charles has absolutely refused to accept commendation for results which are probably only in part due to the discouragement of the initiation of new schemes! Assuming that Sir Alfred Mond is what he has shown himself to be at the Office of Works, is not the stage now set for a new scheme and what are likely to be the preliminary moves in the drama? Labour must be

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placated, and, therefore, no suggestion is made that slacking has had anything to do with high costs. The existence of rings governing the prices of materials has already been made much of and contractors called over the coals. There remains, however, one other party to bring to the scaffold—the architect,—and Sir Charles, regardless of the fact that he calls himself an architect, rends his colleagues, and states, without a tittle of evidence, that they are responsible for the high cost of building, adding that he is not yet disposed to discuss the next move. We suppose it will be that the Ministry of Health, perhaps in conjunction with the Office of Works and acting under Sir Charles's astute advice, shall provide National Housing for the people. The Labour gallery will applaud; and if in the meantime truth has been sacrificed what does it matter—one cannot make omelettes without breaking eggs? We know the great deeds of the D.B.M.S., and how in many cases the price of materials has been kept up by their unwise purchases, but, of course, these things will not happen if we trust the new bureaucracy. If we are doing anyone an injustice by our suggestions we apologise, but we cannot help having our suspicions.

The Answer of Leeds.

The architects of Leeds have not been long in taking up Sir Charles Ruthen's challenge, and the "Yorkshire Post" gives the results of a series of interviews with local architects. The advisory architect to the Corporation (Mr. H. S. Chorley), whose reputation is well known to all, states that no extravagant schemes have been put in hand there and that Leeds architects have been exceedingly simple and economical in their work, which, if anything, was on the side of plainness and severity. If the cost of building has been high it is due solely to the cost of labour and materials. Mr. Carby Hall says that as far as the work carried out in the West Riding of Yorkshire is concerned there is no truth in the allegations made. He says that when the Ministry of Health published a manual of typical designs many architects put them aside as being too expensive for adoption. Messrs. Schofield & Berry, another local firm, showed how simple the work they had designed was, while Mr. Alban Jones adverted to a former attack of Sir Charles, which he put down as being an after-dinner pleasantry, he said that housing had been a poor proposition for architects, as the preparation of plans was only a small part of the work, which had entailed the settling of very complicated accounts and much supervision. He also stated that the Leeds architects had managed to keep 20 per cent. below the standards set by the Ministry of Health itself. We hope that more of our local papers will interview the architects of their districts, as we feel sure that the above results will be closely similar to those obtained all over the country.

The Preservation of Trade-Union Standards.

The General Council of the Trade Union Council have issued a manifesto to the affiliated unions on the question of the longer week. They consider the retention of the shorter working day or week vital, and wish to call on affiliated bodies to make arrangements for resisting any attempt to disturb the *status quo*. They recognise that as an immediate proposition the unions, owing to their depleted funds, are in no position to ensure the successful issue of a strike. A reply from the unions concerned is asked for by March 24. We fully recognise that hours may be too long to produce efficiency, but there is little doubt that in many cases they have been cut down to an unreasonable minimum. The question is one which should be debated between employers and employed solely and simply from the standpoint of cheap production. If men are tired cheap production suffers; but if hours are unreasonably short production is handicapped and the price of all commodities rises. Since cheapness and efficiency are in the interests of both employers and employed, to the latter meaning more employment, it is a thousand pities that the unions should not look facts in the face, remembering that strikes pay no one, but are a means of delivering trade and prosperity into the hands of keener and more sensible rivals.

The Woman as Architect.

The "Westminster Gazette" has given a short article, by Ella Hepworth Dixon, on "Women as Architects," in which she says: "There seems a clear prospect of success for women who take up architecture, not so much in the actual erection of houses, churches, and schools as the interior decoration of homes and the designing of appropriate gardens, which latter should be in direct relation to the houses of which they are part." We think she is wrong in thinking that the decoration of a house, which presumably should be designed by an architect, can be rightly or fittingly divorced from the construction and general design. We have never been able to see why women should not act as architects exactly as men do. Some say they would not care to go up ladders, but these critics forget the small part of an average architect's time which is spent in perilous positions on ladders or scaffolding. Women frequently take part in mountaineering expeditions, and have been known to betray no more trepidation on the edge of a precipice than the average man. If costume stands in the way we have the precedent of the land girl or the window-cleaner, who dress for the part; and we know, too, of male architects who do not feel quite easy if they have to walk along a parapet 100 feet above a street. We further know that men are not examined as to nerve and muscular agility before embracing the avocation of an architect. But we do know that the divorce of decoration from structure is a dangerous quicksand, and that the woman architect who limited herself to decoration would become more of a decorator than an architect, with the disadvantages we know of. We therefore feel inclined to welcome women to the whole banquet, and not to a few of its courses. After all, brains and not muscle should form the architect's chief qualification, and we have met plenty of women who could give points to the average man and leave him behind in the race. We would say let the best win.

German Tombstones for War Memorials.

Employees in one of the leading industries of Aberdeen, the monumental granite trade, were notified on Saturday of an impending cut in wages, varying from 3d. to 4d. per hour according to the class of worker. One reason given for the reduction is that practically no orders for tombstones or war memorials are being received in Aberdeen and only stock stones are being manufactured. Aberdeen granite merchants failed to induce the War Graves Commission to give a contract for Service men's tombstones. The Germans meantime are serious competitors. It is reported that the American wholesale agents, who previously used to buy large quantities of Aberdeen granite, have bought £10,000 worth of headstones from Germany, made from Scandinavian granite, while large English cities are getting tombstones, and even war memorials, from Germany and also from Cornwall at rates lower than those at which Aberdeen granite yards can produce them at the present rates of wages. The fact that German labour should actually be employed in the provision of the headstones for the dead in the Great War is a curious commentary of the times we live in.

Mr. M. G. Weekes, M.Inst.C.E., held inquiries last week on behalf of the Ministry of Health, at Llay and Broughton, near Wrexham, respecting an application by the Wrexham District Council for sanction to a loan of £61,000 for works of sewerage and sewage disposal at those two places. At Llay, a big new colliery is being developed, and the Housing and Town Planning Trust, Ltd., have submitted plans for the erection of 2,850 houses, and of this number 200 are already built or are in course of construction. It is understood that the Trust are contemplating the erection of a further 200 houses very shortly. The works have been designed to deal with a population of 15,000, and can be constructed in three instalments.

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The Dawson Street Club, Dublin.

This Club House, formerly the old City and County of Dublin Conservative Club, consisted of two old eighteenth century houses opposite the Mansion House in Dawson Street. The problem was to provide improved club accommodation with the minimum amount of structural change to the interior. The new front is carried out in a form of early nineteenth century treatment of unpretentious character, a large bay window giving additional space and good lighting. The interior contains some interesting old mantels, cornices, &c. The new façade is carried out in small specially made Courtown Harbour red bricks, two inches thick, with wide mortar joints.



THE DAWSON STREET CLUB, DUBLIN.
R. M. Butler, Architect.

The architect was Mr. R. M. Butler, F.R.I.B.A., and the contractors, Messrs. Farmer Bros., Dublin.

Royal Institute of British Architects.

On Tuesday afternoon last a special meeting of the R.I.B.A. Practice Standing Committee was held at 9 Conduit Street, W., to which architects interested in housing schemes were invited to attend. The object of the meeting was announced to be that of instructing the three delegates who are to represent the Royal Institute in the negotiations with the Ministry of Health with regard to architects' fees for housing work. It will be remembered that the following three members were chosen by the general body—viz.: Mr. H. T. Buckland, F.R.I.B.A., Mr. Francis Jones, F.R.I.B.A., and Mr. Herbert A. Welch, A.R.I.B.A. All three were present, together with a strong muster of other members and of Licentiates. Mr. John Slater, Chairman of the Practice Committee, presided.

The proceedings were of a private and confidential nature, and may only be reported by us in very general terms.

Several of the speakers protested against the speech made last week by Sir Charles Ruthen, President of the Society of Architects, and also the Director-General of Housing, in which a grave attack was made on the attitude of the profession as regards housing. At the conclusion of the meeting a resolution was passed, calling upon the Institute to take immediate action in the matter.

Though Mr. Slater said in his opening remarks that the object of the meeting was to give a lead to the delegates, it proved to be rather an occasion for explaining cases of individual hardship and injustice under the various conflicting rulings of the Ministry of Health. Indeed, the most serious effort made to give a definite instruction to the delegates was lost by an overwhelming majority, in view of the fact that their already very difficult task would be rendered almost impossible if their hands were tied in advance. The fact that the Quantity Surveyors' Association recently agreed with the Ministry to accept one-half of their full fees for abandoned work must be an important factor in any future negotiations by architects. The general feeling was that members did not desire to extort maximum fees out of the Ministry, but to arrive at some equitable figure. Opinions varied as to the best basis of arriving at it. Circumstances differed widely, not merely between different parts of the country, but between different parts of the same authority's area. What might appear an entirely reasonable or even generous scale of fees for one job might be quite inadequate for another. The same remark applied to the question of travelling allowances.

It was generally agreed that, amongst other things, a more precise definition of the word "scheme" was needed. Also that the need for an immediate settlement was urgent.

The meeting ultimately decided that the allied Societies should be requested to name representatives to confer with the Practice Committee, if required, before the delegates go before the Ministry of Health armed with full powers to come to an agreement without further reference to the general body.

The following notes are taken from the minutes of the Council meeting held on January 9:—

London Building Acts Committee.—On the recommendation of the Practice Standing Committee it was decided that the question of higher buildings for London should be made the subject of the discussion at a general meeting.

Local Building By-Laws.—On the recommendation of the Science Standing Committee it was decided to form a Joint Committee to consider the advisability of establishing a new Building Code which, while it will ensure safe construction, will at the same time confer freedom from onerous and unnecessary restrictions imposed nearly half a century ago and which in a great number of instances remain unaltered.

New "Recognised School."—On the recommendation of the Board of Architectural Education, the Degree Course of the Armstrong College, Newcastle, was recognised, on the usual terms, as exempting from the R.I.B.A. Intermediate Examination.

Membership.—The applications of six candidates for the Fellowship and eighty-five candidates for the Associateship were approved.

Standard Specification for Sand Lime Bricks.—At the request of the British Engineering Standards Association Mr. H. D. Searles-Wood, Vice-President, was appointed to represent the Royal Institute at a Conference on the subject of a proposed standard specification for Sand Lime Bricks.

Retired Fellowship.—Mr. George Edwards (elected Fellow 1886) was transferred to the class of Retired Fellows.

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London Art Galleries.

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In selecting Degas for their first important exhibition of the New Year, the directors of the Leicester Galleries have shown their usual good judgment: not only is this artist's work, judged by the test of sale prices, very high at present in public favour, but it contains elements of fine artistic quality and merit. It is curious to note that Edgar Degas, the most temperamentally realistic of modern figure painters, commenced as almost an Academic in his impulse, his painting at the time of his return from Italy, where he went for two years in 1856, "being severe and classical in style, markedly under the influence of his real master, Ingres." A work of this period, dealing with Semiramis at Babylon and dating 1860-1, was in his studio till his death; and I incline to think that the painting shown here under the title of "Femmes à la Fontaine," which is really a very careful and excellent reduced copy of the superb women in Raphael's "Incendio del Borgo" in the "Stanze," may date back to his Roman visit just mentioned.

But all this side of Degas' art went, probably with advantage, when in 1865 he began to come under Manet's influence in the little circle of the Café Guerbois. Fundamentally a realist, he turned to modern Paris for inspiration, and at once found himself. "His favourite subjects henceforth were racecourse scenes, café concerts, washer-women, ballet-dancers, and Parisian women at their baths." If it is objected that these subjects are often far from refined, as in the etchings here—"La sortie du bain" and "Mlle. Bécat, aux Ambassadeurs"—the answer is that were they not so they would be less true to life: where Degas is really fine is in his wonderful grasp of actuality, of momentary and most difficult action quickly and very truthfully rendered, and his ballet dancers and "Parisiennes"—in all stages of their toilet, in the bath, getting out of the bath, drying themselves, brushing their hair ("Après le bain," "Sortie du bain," "Femme se coiffant")—are really marvellous from this point of view. For these studies he uses charcoal generally or pastel, which, in his "Femme se coiffant," is hatched with little strokes of the pure colour; and his pastels shown here ("Une Plage," "Marine," and others) of seascapes and landscapes are delightful.

Degas was a fine etcher, and there are twenty-four etchings here shown, his "self-portrait" and that of "Alphonse Hirsch" being especially interesting. He joined the Impressionists in their sensational exhibition of 1874, and stood in with the group composed of Manet, Monet, Renoir, Pisarro, and Cézanne, exhibiting with them till 1885, though never accepting entirely their views and principles: in his later life he lived very much retired, declining generally either to sell or to exhibit.

The flower paintings by Beatrice Bland reach a high level throughout in design and colour. These studies are often brilliant, and the dark background used, with dull gold frames, is very effective. One might criticise here the sameness of treatment—the flowers always cut and arranged in a bowl or vase against this same background, always the bouquet, never the lovely wildness of nature—but the actual painting is excellent.

An interesting display of etchings by architects is now on view, until January 26, in the rooms of the Architectural Association in Bedford Square. Among those which I noticed specially were two etchings by Percy J. Westwood, of "St. Wulfram Abbeville," and the north transept of Rouen Cathedral, and the two sent by a Bristol architect, Mr. Launcelot Goldie, of an "Ancient Fortress" and "On the High Road." There is quite a good group of some thirty-three etchings by the late Alick Horshall, among which I noted his bridge at Verona; and Sir Ernest George, R.A., sends two fine etchings of the famous bridge at Prague and of Cologne. Lastly I will mention six etchings by George Vey and the admirable massing of light and shadow in Mr. Walter N. Reeney's study of St. Etienne at Caen.

I noted last week that McLean's Haymarket Gallery is showing Polish architectural drawings by Professor Noakowski and sculpture by Henry Kuna. We see a good deal of the Baroque in these architectural drawings ("Interior, Polish Church," "Church and Convent, Seventeenth Century," "Jesuit Church"), but the earlier Gothic appears more rarely ("Gothic Church in Polish Village"), and we find, too, some grand old sixteenth century palaces. The Professor's original designs ("Project of a Church with Catacombs for Polish Heroes" and for a "Triumphal Arch to General Foch") are by no means to be overlooked. Henry Kuna shows thirteen pieces of sculpture in marble and bronze which have a refined sense of form and a certain suavity of line ("Rhythm," "Torso" which is one of the best) in treating the "female form divine."

A very attractive exhibition of camera portraits was opened on January 11 in the Gallery of the Royal Photographic Society under the title of "Men of Mark." These portraits are by Mr. Walter Stoneman (of Russell's), and are really a fine achievement; they include many (if not most) of the leading men of our land and time, and without attempting a list I will pick out the following as especially successful: Viscount Grey of Fallodon (profile), Austen Chamberlain, the Prime Minister, Field-Marshal Allenby, two artists next each other, Sir William Orpen and Sir David Murray, the two Geddes brothers, another fine profile of Sir W. Dickinson, Bernard Shaw, next to the caricaturist, P. H. Fearon ("Pov"), Professor Flinders Petrie (which Mr. Stoneman tells me he considers one of his best), the strong face of Sir James Craig, and Mr. Gordon Selfridge. This is a remarkable gallery of contemporary portraiture; apart from this work I know that Mr. Stoneman's special hobby is colour photography, and he shows here some very beautiful "autochromes."

Messrs. William Marchant have had an admirable idea in showing this month at the Goupil Gallery a collection of drawings of five centuries, from 1459 to 1921. "Many people," they tell us, "deeply interested in Art in its largest sense feel that occasionally an attempt should be made to break down the sharp line of demarcation which divides the old masters from the modern artist. . . By bringing together a certain number of works from diverse periods, including the one we actually live in, those interested can try to discover if the modern works bear any relation to the old, and, if the falling-off is great, in what it consists." The astonishing thing in this selection, which is an excellent one, is that the moderns and the ancient masters seem to be in such perfect harmony together. We find Walter W. Russell, in a delightful study in lead pencil of a girl's head, beside Claude and Le Sueur, Honoré Daumier next to Rembrandt, Bartolommeo Montagna between J. M. W. Turner and Thomas Girtin, without any sense of discord. Perhaps a good deal is due to the admirable arrangement and hanging, in which I incline to think that fine judge of art, Dr. Tancred Borenius, may have had some share; but still, this display accentuates the fundamental truth, which I have always held before me in these columns, that good art has no finality, and belongs to all time. One hears sometimes of the person who "only cares for the primitives"; presumably he would then stop here with the Benozzo Gozzoli angels, and not deign to look at the Ingres portraits next this, or even the male bowed figure by Tintoret, or the superb pen and sepia drawing by Veronese for his grand ceiling painting of Venice Triumphant in the Great Council Hall of the Doge's Palace, which is lent by Viscount Lascelles; but the true answer to this narrowed interest is that it may prevent its holder from even understanding justly and truly the school to which alone he condescends. Across the ages these real masters of art pass the torch; and here Fragonard in his delicious Cupids, Tiepolo, Signorelli join hands with Conder, John, or Sargent. S. B.

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Modern Methods in Building Construction.—II.

By Albert Lakeman, M.S.A., M.C.I.

Steam Shovels (Continued).—The "Thew" steam shovel is an American make which is well known, and the agents in this country are the Allied Machinery Co., Ltd., of 70 Victoria Street, London. This make of machine has a capacity ranging from ½ to 1½ cubic yards, and it has been found that the ½-yard and ¾-yard are the sizes most generally employed by contractors. It is claimed that the capacity of the ¾-yard machine is 45 cubic yards per hour, and in connection with this it is interesting to put forward figures supplied by an actual user of a ¾-yard "Thew" shovel, which are as follows:—

Materials used per week: Coal, 34 cwt.; cylinder oil, 7 pints; grease, 4 lb. *Water purification*: Slaked lime, 1½ lb.; soda ash, 2 lb.

Material excavated per 44-hour week: 1,750 cubic yards.

Cost, including interest on capital and depreciation: 5½d. per cubic yard.

This work was on a face from 4 feet to 9 feet high, and it will be observed that the cost agrees very closely with that given previously, which was 6d. per yard cube.

Steam shovels can also be used profitably for trench excavation in some situations, and the same user supplies the following further data prepared in connection with the same machine when working on a trench dug with a 24-feet dipper stick and a special ½-yard trench dipper or bucket:—

Average depth of trench	8 feet.
Width of top	19 feet.
Width of bottom	3 feet.
Length of ditch	1,400 feet.
Time required to complete	280 hours.

As the material excavated was a very stiff clay, this can be considered a good performance.

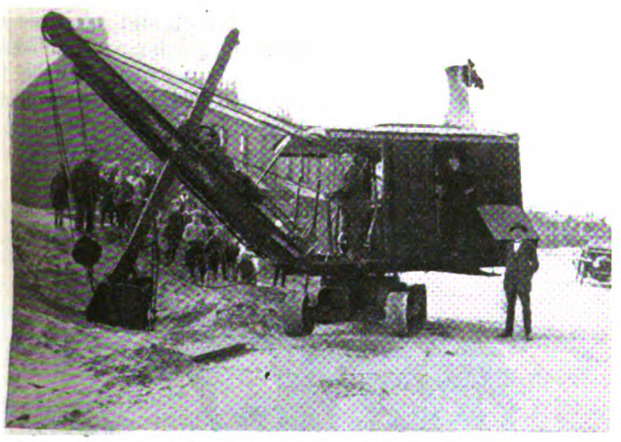


FIG. 6.—"THEW," TYPE "OO" SHOVEL

An example of a ½-yard "Thew" shovel owned by the Unit Construction Co., in use at Blowick, near Southport, is shown in fig. 6, and the type can be clearly seen.

It is claimed that this machine has great rapidity of operation, as it is fitted with two separate engines, to take care of the hoisting operation and the slewing operation. This method prevents any slowing-down of the speed when both operations are being carried out at the same time. The rated capacity is 30 cubic yards per hour, but the actual capacity will naturally depend to some extent on the operator and the height of the face in which the machine is working, as a low face necessitates continual moving forward, and more difficulty in getting a full bucket at each stroke. If the face is 15 feet high or more the rated capacity should be somewhat exceeded. When worked to its full capacity two men are required, one fireman and one operator, and the fuel consumption is about 6 to 10 cwt. of coal per day. The agents state that the life of the machine will depend entirely on the way it is treated, but in many cases machines are in use after eight to ten years of hard service, and are still in good digging condition.

A very good example of a ¾-yard capacity shovel at work inside a building is given in fig. 7, and the fact that such a piece of equipment can be profitably employed in this position should do much to dispel the idea that is prevalent among many contractors that a large open site is always essential. This machine has a working weight of 19 tons, while the smaller machine is 13 tons. Either type can be fitted with broad-rimmed wheels, railway wheels, or continuous-tread trucks. The larger type

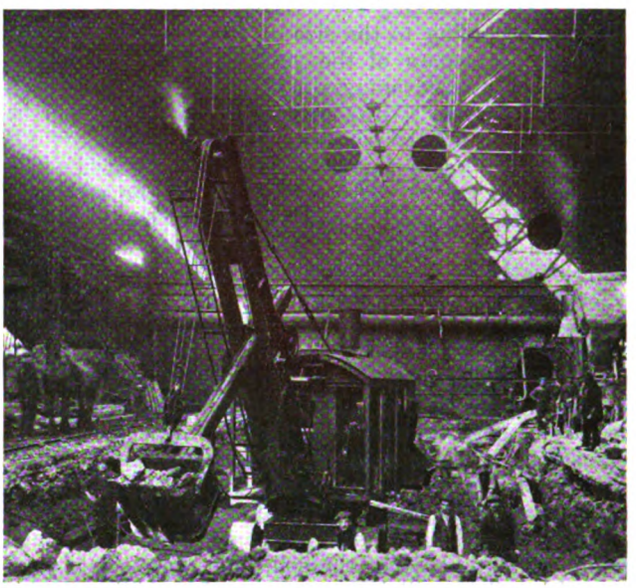


FIG. 7.—"THEW" SHOVEL OPERATING INSIDE A BUILDING.

is particularly recommended by the makers for road construction, cellar and foundation work, stripping brickyards, irrigation ditches, and trenching operations, as it has been found to meet the requirements of the average contractor for general excavating work. Both types of machines can be converted into the ordinary type of steam crane by substituting a plain jib for the digger boom.

In connection with the use of steam shovels for trench work the photograph in fig. 8 clearly shows how the shovel is supported over the cutting by plank bridging, which is moved forward by the machine itself as the excavation proceeds. The back-fill can also be done with the shovel, and when this is possible considerable economy will result.

Trench-diggers.—The second type of equipment mentioned for economical excavation was the trench digger and it is somewhat surprising that the machine is not more generally employed in connection with large

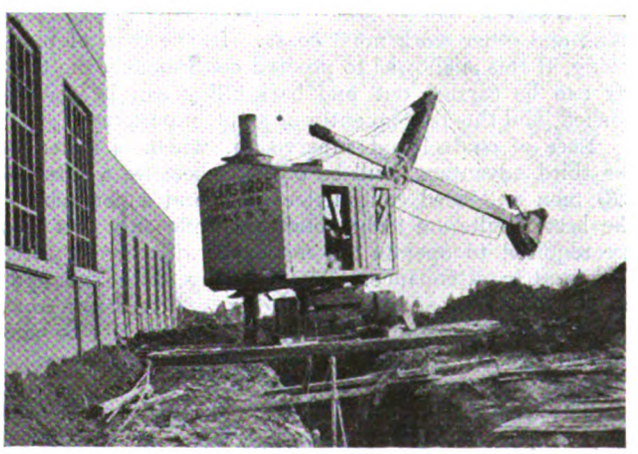


FIG. 8.—STEAM SHOVEL EXCAVATING TRENCH.

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drainage work or trenches for wall foundations. This machine consists of a travelling carriage, propelled by steam power or petrol engine, from which a movable steel arm extends at the back to support a conveyor belt on which are small, shallow buckets fitted with teeth. This belt revolves to draw the teeth of the buckets in an inclined direction against the exposed face of the soil in the trench, causing the dirt to be scraped off into the buckets. On rising to the top of the belt the buckets discharge their contents automatically on to a second conveyor belt which runs at right angles to the trench and which carries the soil either direct into a tip-waggon or on to the ground adjoining the machine ready for back-filling. The arm carrying the main belt is adjustable, and it is set at an angle which will give the required depth to the trench. The width and depth of the cutting that can be successfully carried out by the trench digger will vary according to the size of the machine adopted, and some particulars of the possible variations will be given later. The advantages of the use of the trenching machine compared with ordinary hand labour can be briefly stated as follows: (1) Economy; (2) speed; (3) ease of control and supervision; and (4) accuracy.

As regards the first advantage claimed, the saving in cost will obviously depend considerably on the nature of the trench to be excavated, but generally speaking a saving of at least 50 per cent. should be effected. The writer made several checks on one large scheme when trenches for drains and water mains were being excavated by hand and by two trenching machines, and in every instance the machines were executing the work for less than one-half of the cost of the hand labour. In the case of deep trenches the saving will be intensified, because the use of hand labour will necessitate a fairly wide trench for washing purposes, regardless of the fact that only a small pipe may be laid when the excavation is complete, and in addition the throw will be too high for one handling only of the soil, and intermediate staging and handling will be necessary. In addition to this it is possible for the machine to deposit the earth directly into a wagon for transport if so desired, whereas a further handling to throw up would be required if hand labour is employed. The second advantage stated—viz., speed—will also depend on circumstances, but the remarks made in connection with steam shovels will also apply here.

It is claimed that a No. 36 "Parsons" trench excavator can dig a trench 10 feet deep by 3 feet wide at the rate of 11 inches per minute. This equals an output of approximately 1 yard cube per minute, or 60 yards cube per hour. If the output for one man excavating by hand is taken as ½ yard cube per hour, it will require 120 men to give a total output equal to one machine. To employ such a large number of men on one trench would not be practical or economical unless the length was considerable, and even if such a method could be adopted the sequence of any following trades will be affected, as the laying of pipes or placing of concrete can be following immediately behind the trench-excavating machine, whereas with hand labour there would be long intervals when a section of the trench would be only partly excavated and other work must cease. In the case of pipe-laying, if this is allowed to proceed continuously the testing can be carried out and back-filling can be accomplished, and this is frequently of great importance.

Ease of control and supervision, which is stated as the third advantage, will be obvious, because a force of 120 men will need continual control and supervision if the best results are to be obtained, while only two men are required to operate the machine, with two or three labourers in attendance. The capacity of the machine can be calculated as a definite factor, and therefore in so many hours a certain quantity of work should be performed and the supervision can be reduced to periodical inspections instead of full-time control.

The question of accuracy is the one advantage that may be questioned, but as the machine is set to take out the soil to a certain specified depth it will be clear that it automatically gives accuracy in this respect and continual checking of levels is not required. The cutting of the trench to a straight line is also a simple matter, as a line can be set out by the field engineer at the side of the proposed cut, and the machine is fitted with a guide arm which enables the operator to follow the line and give absolute accuracy. The trench itself is cut with clean vertical sides, and no trimming up is necessary if planking and strutting have to be inserted.

In addition to the use of these trench machines for cutting trenches for pipe-lines and foundations, it is possible to employ them economically for the excavation of large pits in conjunction with grabs operated by derricks or cranes. When applied to this work the trenching machine cuts a series of parallel trenches through the length of the required excavation and the remaining sections of ground are removed by the grab, which can easily bite out the soil between two trenches which expose the vertical surfaces.

It is somewhat surprising that this type of equipment is not in more general use in this country in view of the advantages stated above, and in America it forms part of the standard plant of numerous contractors and public bodies. Water mains and drains are laid by public bodies in nearly all cases in trenches which have been cut by their own trenching machines, and an estimate for excavation based on the use of hand labour would stand little chance of being accepted for work in any situation when a machine could be employed.

It is significant that the writer when collecting data in this country was able to obtain information from one firm only, who supply trench excavators—viz., Allied Machinery Co., Ltd., of 70 Victoria Street, London.

This firm supplies the "Parsons" trench excavator in three sizes—viz., Nos. 24, 36, and 78, the number indicating the maximum width in inches to which that particular machine will dig. For a general contractor's use the No. 24 or No. 36 will be the most suitable type, as No. 78 is a large piece of equipment that will only be required on a very large job.

The illustrations in figs. 9 and 10 will clearly indicate the main features of these machines, and with the aid of a few notes the contractor should have no difficulty in deciding which excavator would be most suitable for any particular scheme The No. 24 machine will dig trenches 15, 18, or 24 inches wide and any depth up to 10 feet. The various widths are obtained by using side-



FIG. 9.—CLOSE VIEW OF "PARSONS" TRENCHING MACHINE.

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FIG. 10.—"PARSONS" TRENCH EXCAVATOR AT WORK.

cutters, which are independent of the buckets, and which can be easily attached or removed from the main chain belt. An example of these side-cutters can be seen in fig. 10, while fig. 9 shows the use of the buckets only. The boom is built in sections, and it can be shortened and equipped for maximum depths of either 6 or 8 feet. This is a distinct advantage, as it eliminates carrying unnecessary weight of boom and bucket when shallow trenches are being dug. The bucket teeth are made removable for sharpening, and it is claimed that they can easily be taken out and repeatedly forged and tempered, while all the widening parts are arranged in a manner which permits easy renewal. The bucket-cleaner deposits the excavated material directly on to the conveyor, and its action is cushioned by a heavy coil spring. The conveyor, which runs at right angles to the line of dig, can be adjusted to deposit the excavated soil on either side of the trench, and the outer end of this conveyor is supported by a wire cable which is controlled by a hand wheel readily accessible from the ground. This control allows the angle of the conveyor to be varied, and it can be raised to discharge direct into carts or wagons. The greater part of the weight of the machine is carried on a caterpillar traction mounting, and it is claimed that the area is sufficient to give a pressure on the ground of less than 421 lb. per square foot. This type is driven by a petrol engine, and the machine can be operated by one man only. Some of the principal particulars are as follows:—Overall width of machine, 8 feet; overall height, 9 feet; length, with boom extended, 32 feet 2 inches; weight, 17,000 lb.; wheel base, 11 feet 6 inches; road traction speed, 1½ miles per hour; and digging traction speeds, 8 inches to 10 feet per minute.

The No. 36 excavator is similar to the No. 24, but has a greater capacity, and it may be equipped with either an internal-combustion or horizontal steam engine. This machine will dig trenches of any depth up to maximum of 15 feet, and in width from 20 to 36 inches, and its other principal features are:—Overall width, 9 feet 2 inches; overall height, 9 feet 6 inches; length, with boom extended, 42 feet 6 inches with oil engine, and 44 feet with steam engine; weight, 30,000 or 33,000 lb.; wheel base, 13 feet 3 inches or 14 feet 3 inches; road traction speed, 1½ miles per hour; and digging traction speeds, 6 inches to 10 feet per minute, with range of twenty-five changes.

The No. 78 machine is a much larger type, and it has a maximum digging depth of 20 feet, and can excavate trenches having widths of 28 to 78 inches. The varying width is obtained by a different method to that employed in the other two machines, as the use of the side-cutters is eliminated, and the machine is fitted with the Parsons oscillator, which causes the boom and buckets to move across the width of the trench during the digging action. A set of adjustable collars is employed on the shifting rod which determines the cross-travel, and these are set to give the desired width. These machines have a digging traction speed varying from 1½ inches to 4 feet per minute with sixty-one changes, and thus a wide range is possible. The weight when in working order is about 24 tons, and it is fitted with two pairs of road wheels and one pair of caterpillar traction treads.

It is interesting to note that the Allied Machinery Co. also supplies a special trench-filling machine which can be operated by one man. This machine is fitted with an automatic scraper having an average working speed of four loads per minute, which represents a replacement of from 400 to 800 cubic yards of soil in ten hours. A machine of this type will prove useful and economical to follow behind the pipe-laying in a trench which has been excavated by a trenching machine, and in a large scheme the saving in time will be considerable.

(To be continued.)

Competition News.

Members and Licentiates of the Royal Institute of British Architects must not take part in the Seaford layout competition, because the conditions are not in accordance with the published regulations of the Royal Institute for architectural competitions.

The assessors in the Guards Memorial competition, Sir Thomas Brock, R.A., and Sir Reginald Blomfield, R.A., have selected the design of Mr. Ledward (sculptor) and Mr. H. Charlton Bradshaw (architect), and the Memorial Committee have decided to entrust the execution of the work to Messrs. Ledward and Bradshaw. The conditions of the competition laid down that the memorial (which will stand on the replanned Horse Guards Parade) should include a group of figures in repose—not in action—representing the five Guards Regiments, and an inscription. Both Mr. Bradshaw and Mr. Ledward won the Prix de Rome scholarship in 1913, and were in residence in the Villa Medici at the outbreak of war.

Out of 195 competitive designs submitted for the Paisley War Memorial that of Sir Robert Lorimer, A.R.A., R.S.A., Edinburgh, has been selected. The Town Council of Paisley invited architects and sculptors to submit designs for the memorial which is to be erected at The Cross, near the heart of the town. The Town Council appointed Sir Reginald Blomfield, R.A., and Mr. D. Y. Cameron, R.A., as professional assessors to adjudicate on the designs, but as Mr. Cameron is at present in the South of France the duty was undertaken solely by the former. The design submitted by Sir Robert Lorimer is for a 30-foot pedestal in Cumberland granite, surmounted by sculpture; associated with him as sculptor for the bronze group which forms the crowning feature of the design is Mrs. Meredith Williams, Edinburgh. The premium awarded to the successful architect is £250. The second award (£200) was given to Mr. Ernest G. Theakston, F.R.I.B.A., 12 New Court, Lincoln's Inn, London, with whom as sculptor was Mr. S. Nicholson Babb, 17 St. Dunstan's Road, Baron's Court, London. The third (£150) to Mr. Harold Tarbolton, F.R.I.B.A., 117 Hanover Street, Edinburgh; the sculptor for his design was also Mrs. Meredith Williams.

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Correspondence.

To the Editor of THE ARCHITECT.

Sir Charles Ruthen's Charges against Architects.

SIR,—Sir Charles Ruthen has set out to defend the Ministry for which he is acting by throwing discredit on the members of his own profession. He holds the office of President of the Society of Architects and also that of Director of Housing under the Ministry of Health. It can hardly be thought that he is speaking as an architect in making his attack: it is too ill-founded and inaccurate for that to be the case, and it is gratifying to hear that the Society of Architects is taking prompt steps to deal with Sir Charles Ruthen's pronouncement.

His contention that architects are to blame for the high cost of housing is entirely without foundation, for the standard of housing, based on that advocated in the Tudor Walters Report slightly lowered, was imposed by the Ministry from the outset. The details of accommodation and construction were set out and insisted on by them. They prescribed the areas of rooms, the number of houses to the acre; they issued model plans; they made model specifications, and they reviewed and revised the plans submitted to them in minutest detail. The architects on their part studied the problem with scientific precision in order to secure economy of material and arrangement: the gables that Sir Charles deprecates were used in order to save brickwork by lowering the main walls rather than for the purpose of artistic effect.

By degrees, as prices increased, the Ministry reduced their own standard to some extent, omitting bedroom cupboards and fireplaces, depressing roof slopes, and cutting down shelving and other small items to an absolute minimum. The high prices were due on the one hand to the labour policy of the Government and on the other hand to interference by the Government with the normal manufacture and supply of materials; they were no more due to architects than to stockbrokers.

A very telling instance of the effect of interference with the supply of material comes recently from Colchester, where the housing scheme was approved upon condition of the bricks being obtained from the D.B.M.S., and these bricks are costing 12s. 1d. per thousand above the open market price.

It would be easy to fill many of your columns with a discussion of the housing matter from the architect's point of view, but my purpose in writing is to protest against excusing the abandonment of housing by allocating to architects the blame that belongs entirely to the ill-advised policy of the Government in the matter of wages and the supply of building material. Labour must not be blamed because its political weight is great; builders must be handled gently because their vote is a large one; architects are few, and may safely be shot at, but the shooting should not be done by one who claims membership of the profession.

As far as the accusation of profiteering is concerned, I need do no more than remind Sir Charles that the fees we agreed with the Ministry are rather less than one-third of our ordinary fees, and that he himself was one of the deputation by whom the arrangement with the Ministry was originally made.—Yours, &c.,

ARTHUR KEEN, Hon. Secretary, R.I.B.A.

Royal Institute of British Architects,
9 Conduit Street, W., Jan. 18.

Profiteering Architects.

SIR,—In last Friday's "Manchester Guardian" there is a short report of a speech by Sir Charles T. Ruthen, President of the Society of Architects, given at the annual meeting of the Society. It is headed "Blaming the Architects," and in which he placed upon the shoulders of the architectural profession the main responsibility for the financial failure of the State housing scheme, and stated that the architect did not realise his responsibilities to the State, and allowed his pencil to run wild in the dream of the artistic home, and that the architect must face the prime responsibility of the financial disaster of the great State housing scheme.

He is also quoted as stating "The unfortunate feature was that architects profiteered in that their art occupied too large a part in this great undertaking. They expected to get from something more than that something could give."

We would call the attention of architects generally, and the members of the Society of Architects in particular, to this report, which if correct, is a very serious statement.

Newspaper reports of such a speech have a very serious effect on the general public, and Sir Charles T. Ruthen should be called upon at once either to prove or publicly withdraw his statements. Yours, &c.,

ADSHEAD, TOPHAM, & ADSHEAD.

23 King Street, Manchester.

Forthcoming Events.

Friday, January 20.—Institution of Municipal and County Engineers. Meeting in the South-Western District at Plymouth (two days).

Monday, January 23.—Royal Institute of British Architects. Meeting at 9 Conduit Street, W. Paper by Professor W. Rothenstein, M.A., Principal of the Royal College of Art, entitled "Architectural Draughtsmanship." Award of Prizes and Studentships. 8 p.m.

Tuesday, January 24.—Royal Institute of British Architects. Meeting at 9 Conduit Street, W., of Associates to discuss a report by the Associates' Committee on "Unification and Registration." 8 p.m.

— Liverpool Architectural Society. Meeting at 13 Harrington Street. Paper by E. W. Martin (winner of the Honan Scholarship) entitled "An Architectural Student's Impressions of Paris." 6 p.m.

— Society for the Promotion of Roman Studies. Meeting at the Society of Antiquaries, Burlington House, W. Paper by Mr. R. G. Collingwood, M.A., entitled "Hadrian's Wall: A History of the Problem." 4.30 p.m.

— Women's Engineering Society. Meeting at 26 George Street, W. Paper by Miss Gwynne Howell entitled "Domestic Engineering." 6.15 p.m.

Wednesday, January 25.—Edinburgh Architectural Association. Meeting at College of Art, Lauriston Place. Paper by Mr. J. F. Knox entitled "Notes on Specifications." 7.30 p.m.

— Royal Society of Arts. Meeting at John Street, Adelphi, W.C. Paper by Mr. H. M. Edmunds entitled "Photo-Sculpture." 8 p.m.

— Royal Institute of British Architects. Students' Evening arranged by the Board of Architectural Education in connection with the Exhibition of Prize Drawings in the Galleries, 9 Conduit Street, W. 8 p.m.

Thursday, January 26.—Institute of Clayworkers. Meeting at Essex Hall, Essex Street, W.C. Paper by Mr. Nathaniel Lloyd, O.B.E., entitled "Brickwork." 4.30 p.m.

— Concrete Institute. Meeting at 296 Vauxhall Bridge Road, S.W. Paper by Mr. E. B. Mouliin, M.A., entitled "Capillary Canals in Concrete, and the Percolation of Water through Them." 7.30 p.m.

The "Architect" Fifty Years Ago.

JANUARY 20, 1872.

NEW LAW COURTS.

SIR,—I have hitherto carefully abstained from all criticism on Mr. Street's design, and have no intention of deviating from this course.

I regret, therefore, extremely that the references to me in his recent pamphlet (many of which appear to me uncalled-for and very misleading) oblige me to take steps to make public the real state of the case as regards my position in the late competition.

I hope my answer will be in the hands of the printer this week, and in the meantime must ask your readers to hesitate before accepting the statements referred to.

I am, Sir, your obedient servant,

EDWARD M. BARRY.

21 Abingdon Street, S.W., Jan. 17, 1872.

Princess Beatrice and the Duchess of Albany last week visited the bell foundry and clock factories of Messrs. Gillett and Johnston, at Croydon. The object of the visit was to view the work in general, and particularly to inspect a carillon of twenty-three bells which are to be sent to Toronto. The bells, which are hung in a steel frame, are the gift of Mr. Chester D. Massey, of Toronto, to the Metropolitan Church there. The largest bell weighs over four tons, and the total weight of the twenty-three bells is over 17 tons. This will be the first carillon to be erected in Canada. Mr. C. F. Johnston, head of the firm, gave a recital by operating a hand clavier. Hymns and national airs were included in the programme.

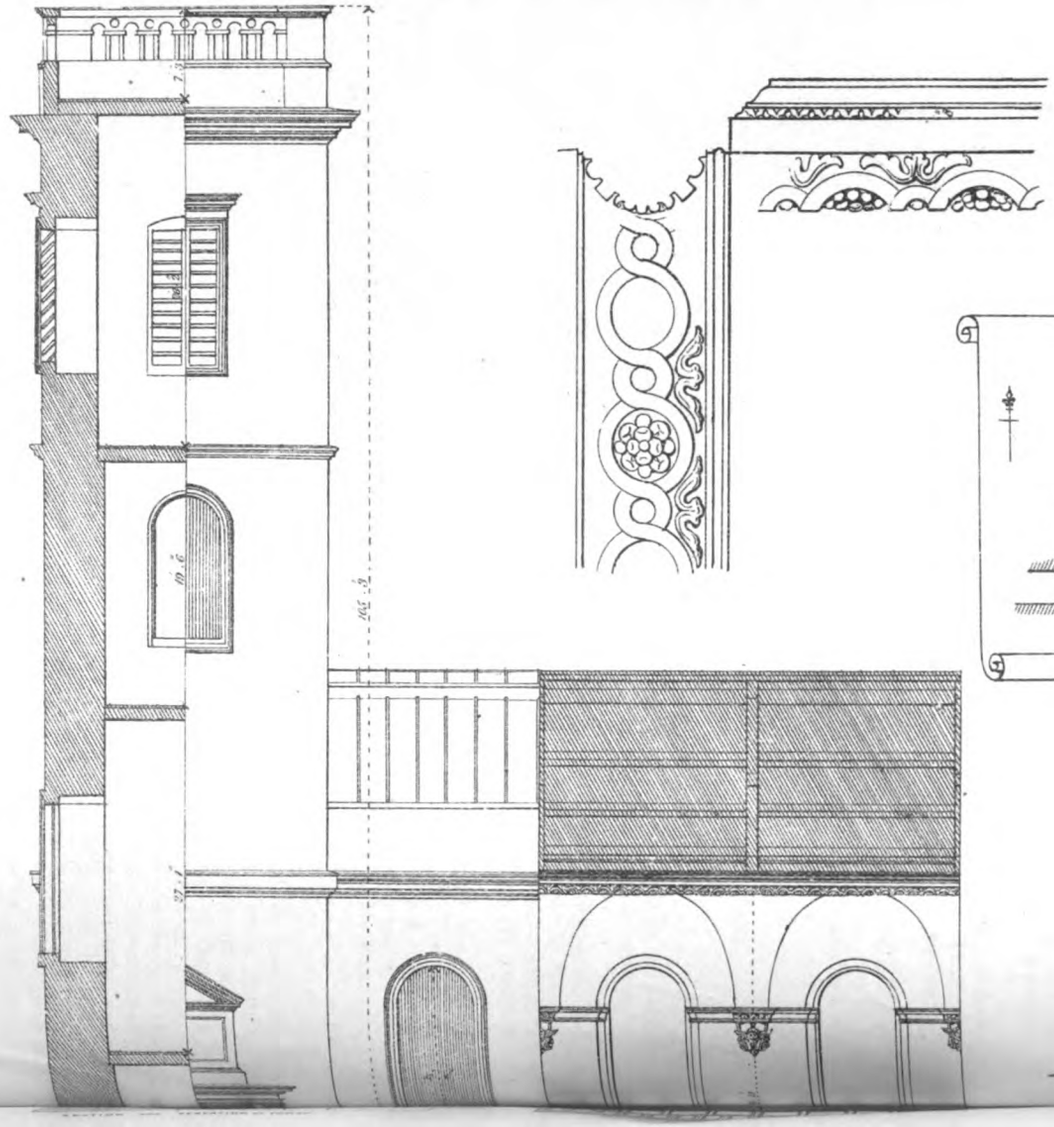
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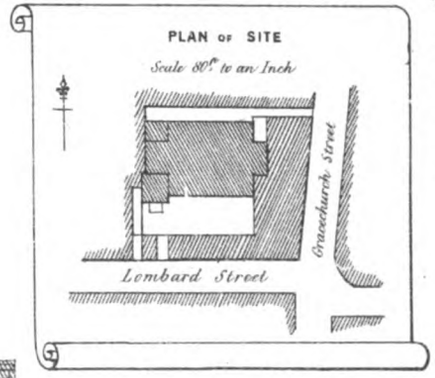
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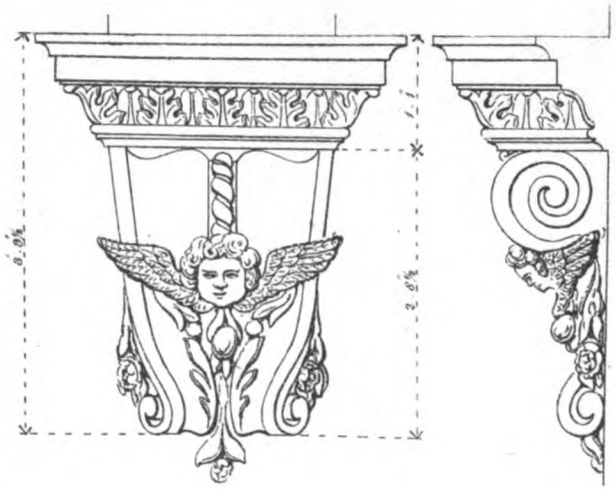
Sir C. Wren's Churches.

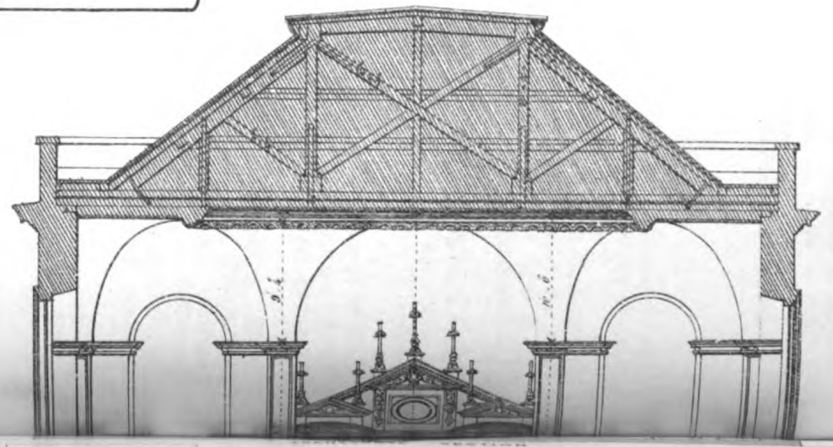


DETAIL

to an Inch Scale



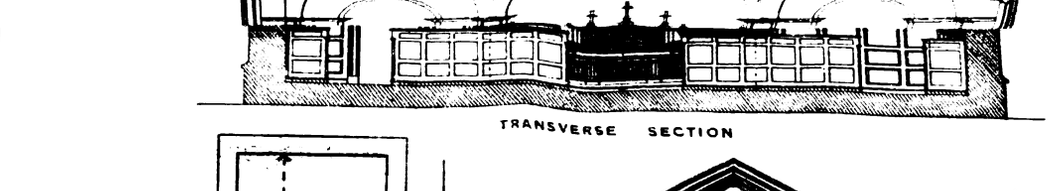




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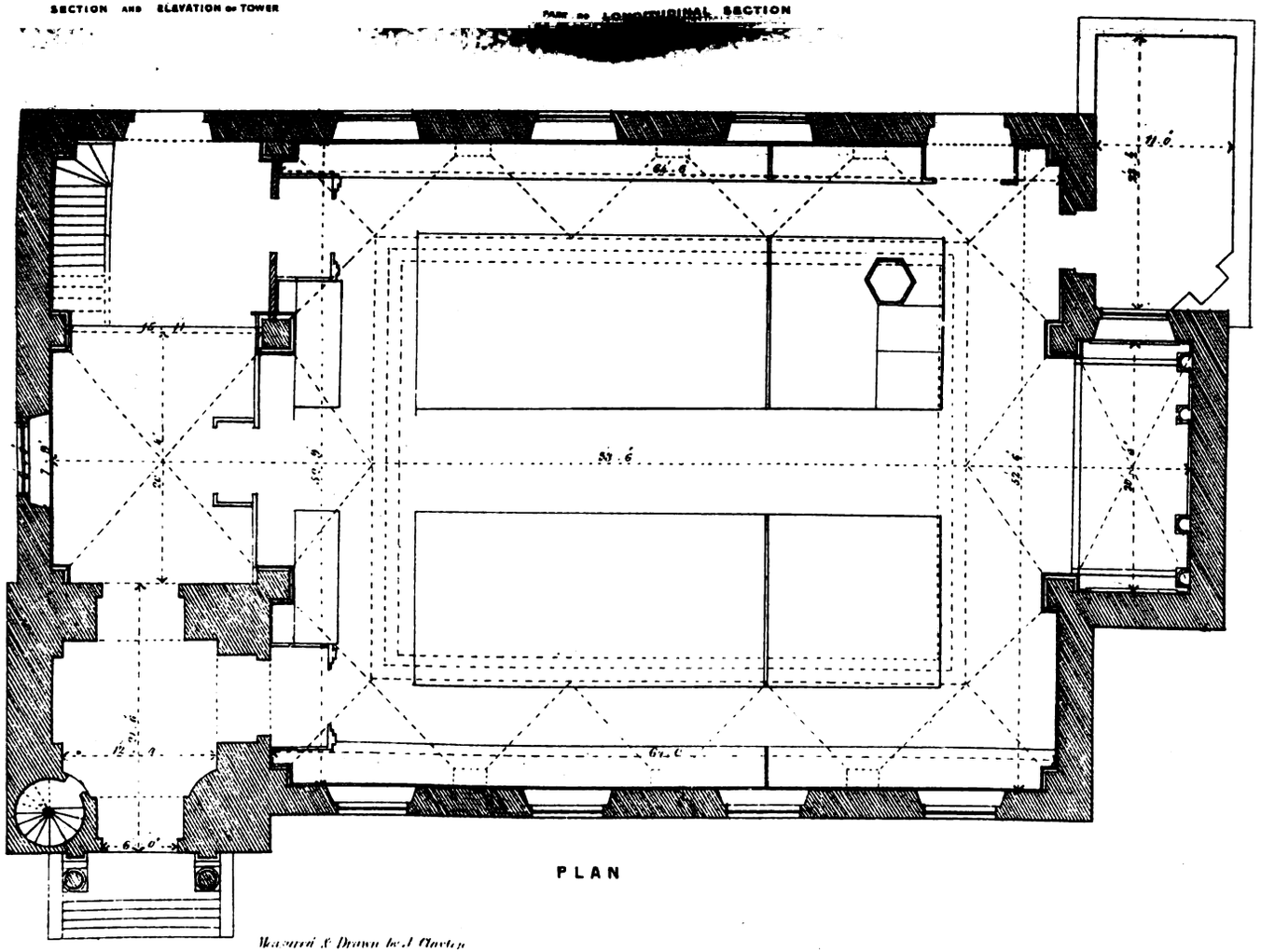


SECTION AND ELEVATION OF TOWER

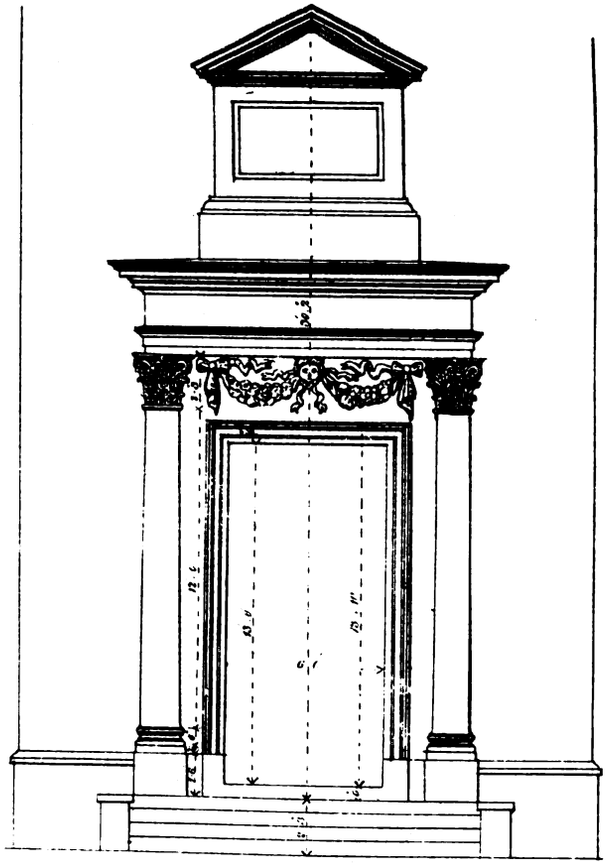


LONGITUDINAL SECTION

TRANSVERSE SECTION



PLAN



ELEVATION OF TOWER ENTRANCE

Scale

Measured & Drawn by J. Clarke

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ALL HALLOWS CHURCH, LOMBARD STREET, LONDON.

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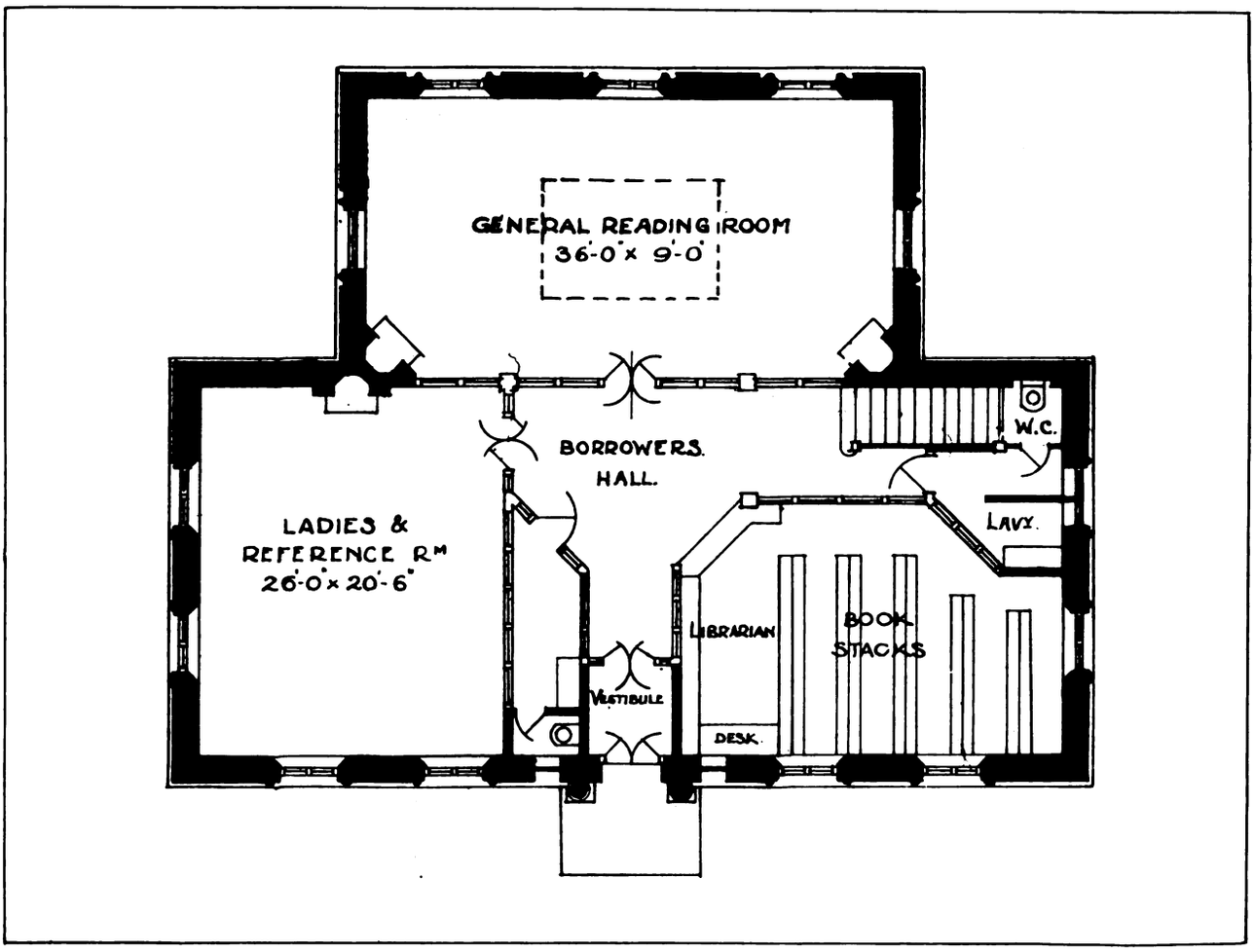
ALL HALLOWS CHURCH, LOMBARD STREET, LONDON.

FROM A SKETCH BY C. G. HARPER.

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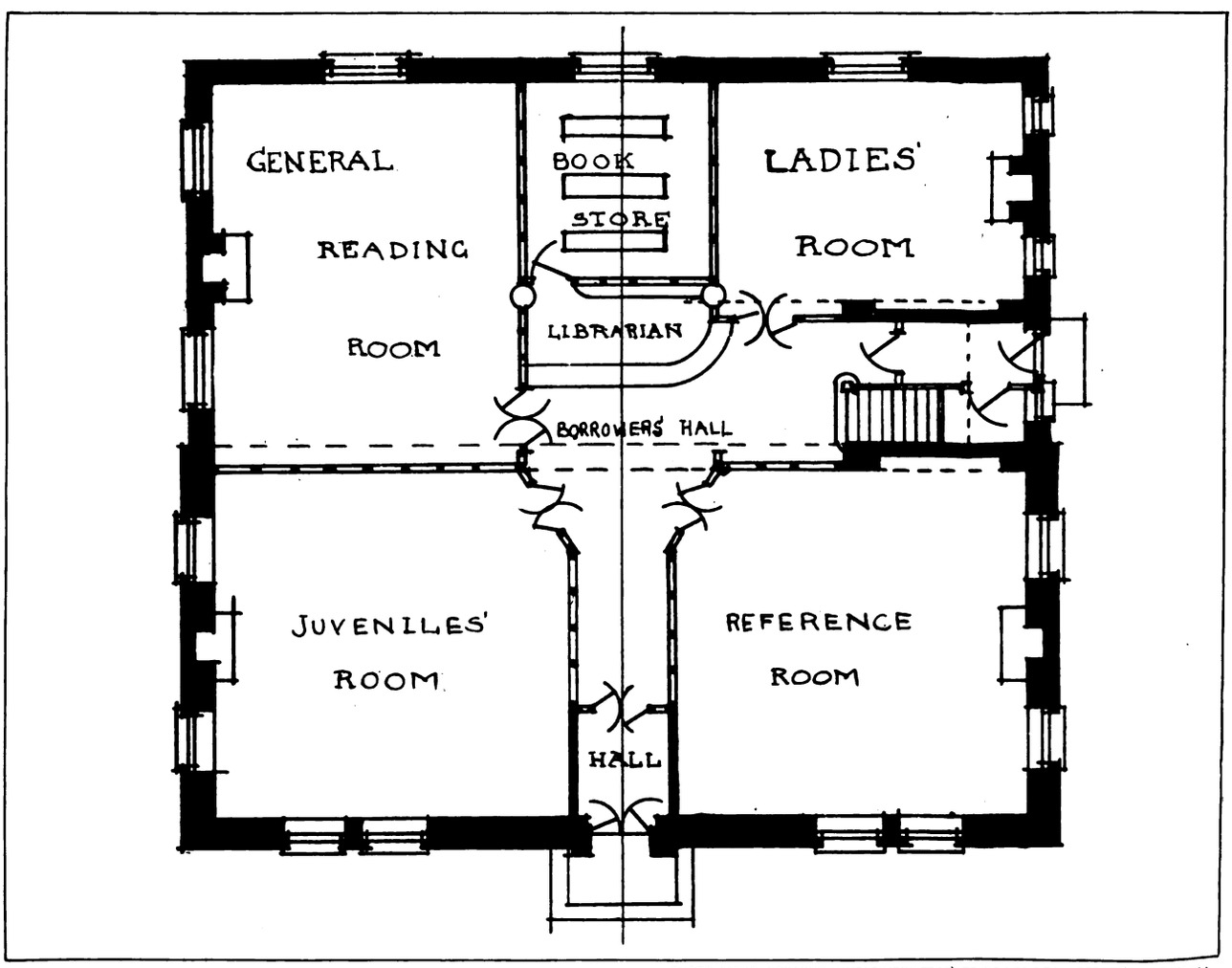


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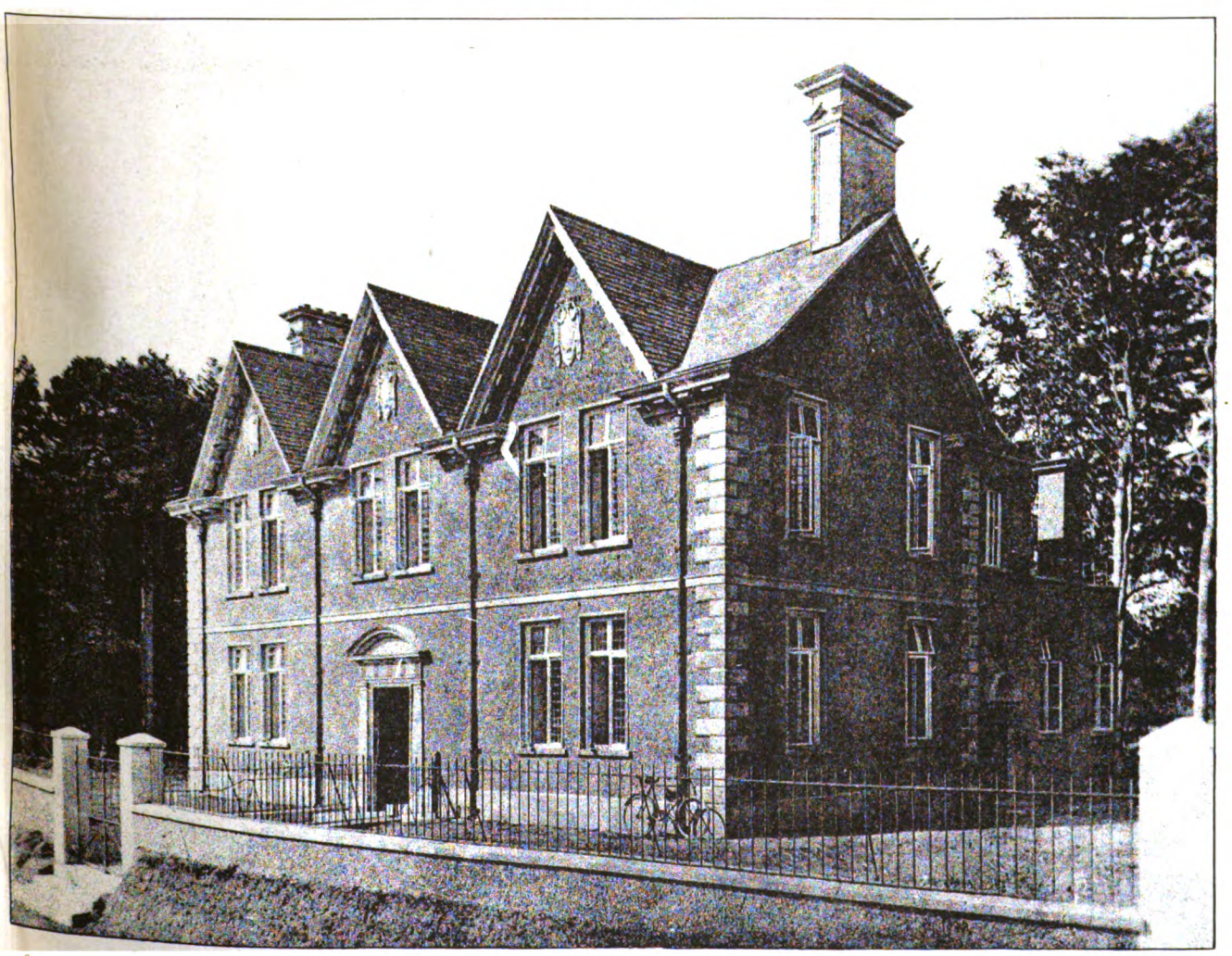
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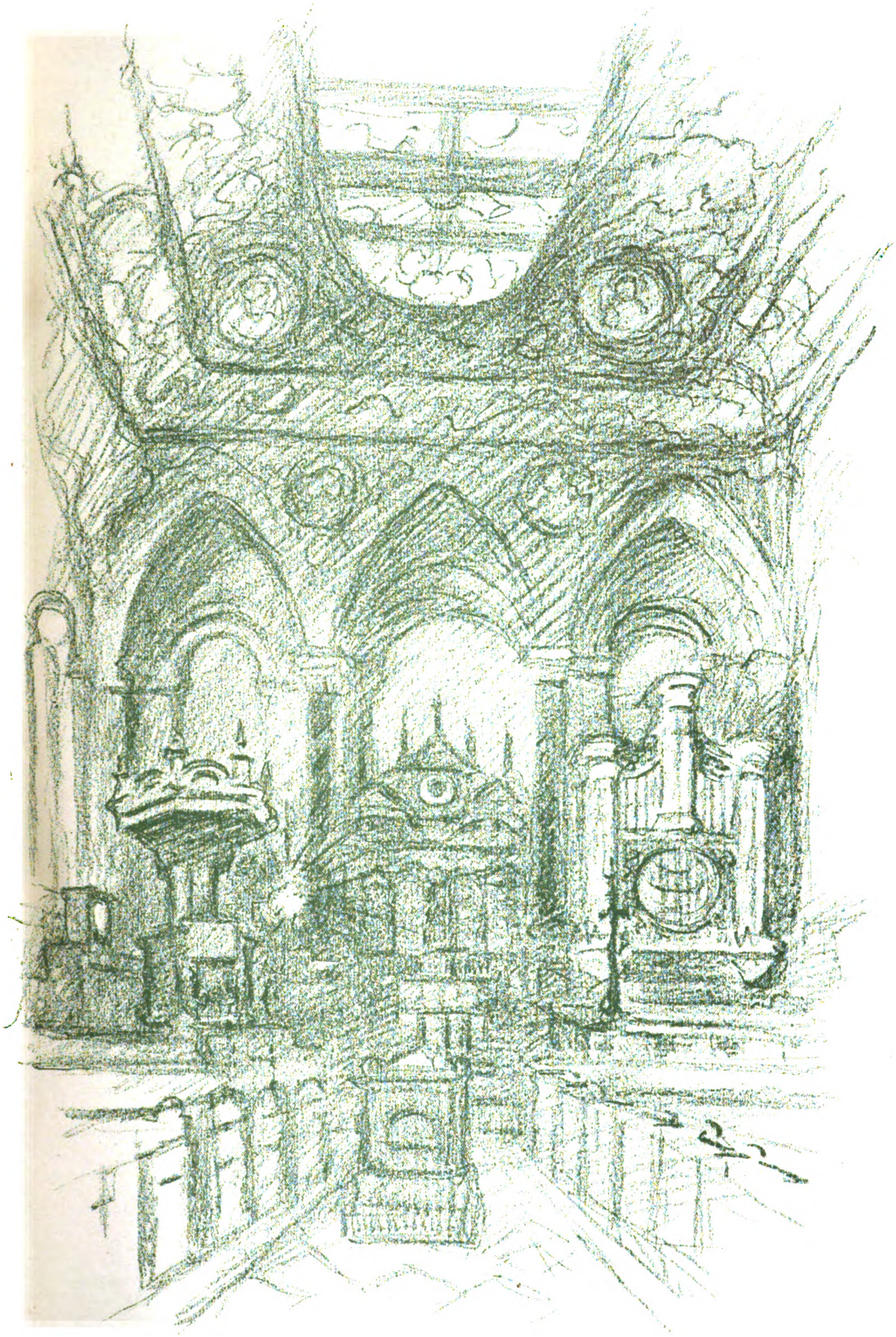
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The Society of Architects.

The annual general meeting of the Society of Architects was held at 28 Bedford Square, W.C., on Thursday, the 12th inst. The President, Sir Charles T Ruthen, O.B.E., F.R.I.B.A., was in the chair.

The preliminary business included the adoption of the Council's and Auditors' annual report, after which Sir Charles Ruthen read the following paper on

THE ARCHITECT AND THE STATE.

During the past few years I have been driven to the consideration of the subject of the position occupied by architects and architecture in the social system of to-day.

Circumstances following rapidly one upon another, during the exceptionally strenuous and exciting years immediately following the signing of the Armistice, have caused one to wonder whether the architect of the twentieth century is much if anything ahead of his brother of a century ago. Whether or not in the advance of civilisation; of science; of commerce; in the progress generally of all that contributes to modern life; the architect and his craft have progressed shoulder to shoulder with other things.

Those within the profession who take the slightest interest in matters outside their immediate practice, and it is doubtful if the percentage of such, in this connection, is lower in any other profession or walk in life, have heard much of late regarding proposals for the unification of the ranks of the profession, and the statutory registration of those practising architecture.

It is further well known to that small group within the profession that much of recent years has been heard of what are considered to be the proper modes and methods of providing efficient architectural education.

The ordinary ranks of the profession take just a passing notice, if even that, of this effort or that effort designed to prevent the practising of the inefficient or unqualified, having for its object the education of the coming generation of architects, or any movement affecting the ranks of the profession throughout the Empire.

The general public know nothing of these momentous discussions, carried on energetically and almost continuously by a mere handful of professional enthusiasts, and have little knowledge of the real value of the architect and his craft to modern progress and civilisation.

Some, but comparatively few, understand the architect and value his work. Many others look upon the architect as a kind of necessary and expensive evil, mainly useful in connection with building matters, in avoiding difficulties in relation to regulations and by-laws; but generally a costly luxury to be avoided whenever possible. Still many more possess the haziest idea about the architect and his work, and are disposed to consider, in any event, that he may be useful to the few but is much better done without by the masses.

One wonders whether there can be a shadow of doubt as to the value that the architect and his craft should have been in the prosecution of the great world war, whether architects themselves consider that their valuable training and experience were utilised in the fullest manner, and to the benefit of the State and the people, in that great emergency. Was there in the mind of any statesman at the head of affairs in the tragic days towards the close of 1914 and during 1915, any full and complete knowledge of the great trained but dormant machine ready at hand, in the ranks of this great profession? If not, at whose door lay the blame for this lack of knowledge? Is it possible that architects themselves still continue to live in a fool's paradise, and are content to cast the blame upon other shoulders?

In pondering over these matters one again wonders whether the architect of this enlightened century has really grasped his full responsibilities, and still again to wonder whether he has yet the slightest appreciation of the great part planned out for him and his art in modern civilisation.

In turning these vital matters over and over in one's mind, the fact is very surely borne in upon one, that the great public who, unconsciously and in a matter-of-fact way, avail themselves every hour of the day and every hour of the night, of the product, good, bad, or indifferent, of the great craft of building, have not the faintest idea of the important part played by the members of the architectural profession in the every-day life of the people.

One wonders whether the architect attaches to himself any share of the blame for this fatal and disastrous ignorance upon the part of the people, or whether he sometimes stops to think, and perchance realises that this lack of understanding is after all due, if not entirely in a large measure, to the strange backwardness, perhaps one would be more correct to say selfishness, upon the part of the entire profession.

A backwardness or selfishness which is having a very baneful effect upon the fortunes of this great and honourable craft.

Better that the architect adopted the practice—often termed pernicious, but very consistently condemned in our country—extensively and even successfully practised on the other side of the Atlantic—of advertising his wares and his services, in the manner popular with any great drapery store or furniture emporium.

Architects must not advertise, they must not offer their services; this would be a gross breach of professional etiquette; they must remain silent and trust to some piece of good fortune; to the winning of some competition; to the favour of some important or wealthy client to bring them publicity or perchance fame.

That the advertising of one's wares, like some vendor of ordinary or extraordinary soap, or hair restorer, is repugnant and offensive to the sensitive feelings of the architect brooks no argument; but to lie low and hide the gifts of the Creator under a bushel and to refuse or neglect to let the public learn of the value to modern life of good architecture is a crime. It is wrong to architecture as an art, wrong to architecture as a science, and wrong to the public whom the architect should serve.

The present stand of architects is perhaps agreeable to the few—shall I say even satisfactory to the few? At the top of the professional ladder there is much room, but the lower the rungs the greater the crowd, and the more congested and cramped the accommodation.

To the many the present practice is mere false pride, backed by generations of narrow outlook, and love for the profession which forgets its service to the people.

An architectural debating society—one has never heard of such a society, but perhaps the idea is worth cultivating—looking for a fit subject for debate, might adopt one of the following rather amusing titles, which would, I feel sure, provide much food for consideration and debate:

A. "What is advertising as applied to architects and their work?"

B. "Is advertising that for which payment is made in cash at ordinary advertisement rates?"

C. "Is advertising not advertising if no payment is made for insertion, and when the matter appears in that part of the journal usually read by the greatest number of readers?"

One may object "to advertise" oneself or one's own work in the sense of paying so much per line in the advertisement columns of a newspaper or periodical; but one may not object "to being advertised," or to being written about or of, in the ordinary news columns of a newspaper or periodical. This is cheaper, and incidentally more efficacious, but it is nevertheless advertising.

It will be generally agreed by those who observe even casually that those highest up the ladder of fame get the most publicity—sometimes called advertisement, and rightly so—and that free, and the lowest upon the ladder—the least publicity and very possibly have to pay directly or indirectly for that which they get.

But this is a wide and difficult technical argument, and is likely to carry me away from my main topic. Nevertheless, those who are ultra-prudish and sticklers for high

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professional conduct might do well to consider this subject. I can safely advance this consideration, for I am guilty, but not to blame.

To withhold from the great masses of the people information expressive of the value of good architecture is not sound common sense. The greater the appreciation by the masses of good architecture, the better for the people, the world, and architecture.

Architecture is not an insignificant craft, it is not valuable or useful only to a few, it is necessary and essential to the full life of the nation and should not be kept in the background.

It is only a lower-rate trade or business that fails to bear the full glare of the sunlight.

Architects may have roamed through the catacombs of human activity for centuries, may have been afraid of injuring the majesty of the art of architecture by coming into the light, or of injuring the susceptibilities of those practising the art; but centuries ago architecture was considered a sublime art applicable only to the great monuments of the civilisation of the ages. To-day it must be realised that although the art is all that was claimed for it in the ages gone by, it is more the art of the people who are the living monuments of modern civilisation.

A few men of the profession gathered together, mixed with a sprinkling of eminent men of other professions, listen attentively to an address delivered by an acknowledged leader of the profession, and one eminent in the practice of architecture. The greatness of architecture is spoken of for the thousandth time, its glorious history is traced with pride, and generally the high importance of the craft in past ages is spoken of with bated breath. The subject of the high honour of the art and its ancient reputation is worn threadbare; but no effort is made to apply the teachings of the art to everyday ordinary life. The application of the art in its simplest form to the needs of the million is overlooked in the glorification of the higher forms of the art in the sublimest sense.

We have not come to the end of the history of architecture, no more than we have come to the end of history. We may have come to the end of a long chapter in the history of architecture, or we may be reaching that point; but there are other important chapters to follow. We cannot, and should not, expect to live on the past reputation of our art. The greatness of its past should not prevent it from having a great present and a great future.

Do the representative bodies of the architectural profession, to-day, stand for the architecture necessary for the social and industrial well-being of the people, or do they stand for that civil architecture which is the art of designing and constructing palaces, houses, churches, and other edifices for the purposes of civil life, and in a more limited and appropriate sense, restricted to such edifices as display symmetrical disposition and fitting proportion of their party, and are adorned by pillars, entablatures, arches and other contrivances for their embellishment?

Is this in the true sense the architecture of the architects of to-day, and, if so, is the architect giving to the State in these utilitarian and essentially commercial days the services which the State has a right to demand? In other words, is the architect adapting his art to the needs and requirements of the present time?

Let us examine dispassionately, so far as the limited time at our disposal permits, the bearing of these pointed comments upon matters architecturally to-day, and their application to the events of the past few years. Let us consider whether we have failed to apply the lessons taught during the period just coming to an end. Shall we attempt to benefit by our mistakes in the past and remove the causes, or shall we allow the lessons of the great world upheaval to pass unnoticed, and allow the profession to recede into the rut from which quite recently it has been forcibly ejected?

Let us attempt to put behind us all preconceived ideas and notions of what is proper or improper from the points of view of etiquette or professional pride, and let us endeavour to apply to the necessities of the age in which we live a consideration of the value of the real science of building and architecture, so far as the latter term is applicable to the requirements of the people and the State, in regard to healthy and happy existence, and apart altogether from the art of the craft in the artistic or æsthetic sense.

Architecture, it will be generally agreed, is a very wide and comprehensive term, and although there are thousands in this country who, owing to some reason best known to themselves, do not avail themselves of the services of the architect, it is yet passing strange that all the defects in all the buildings that are erected are ingeniously placed at the door of the architect. The architect can well be done without if the work executed without his aid should prove satisfactory, but all faults in completed buildings are accounted as evidence of the incompetency of the profession.

I have set out to address these words to my own Society in the hope that I may startle the members of the profession into some definite form of activity, I refrain from making any definite recommendation, I deliberately accept the rôle of a ruthless critic, in the hope that the profession may be awakened from the lethargy into which ages of false pride have reduced its members.

The difficulties which the State had to face, immediately after the conclusion, and mainly as a result, of the world-war, gave the architect and the profession an opportunity of a century. I am not contending in any sense that the war did not seriously embarrass the members of the profession, or that, as a direct result of the great struggle, the ordinary flow of architectural employment through normal channels was not seriously checked, in fact very largely suspended. But I do suggest that a torrential flow of entirely new or almost entirely new work was released as the direct outcome of the cessation of hostilities. This torrential flow of new work was somewhat unevenly distributed, and in that direction left much room for complaint, but such uneven distribution appeared to be inevitable in view of all the circumstances peculiar to the architectural profession particularly referred to in my opening remarks.

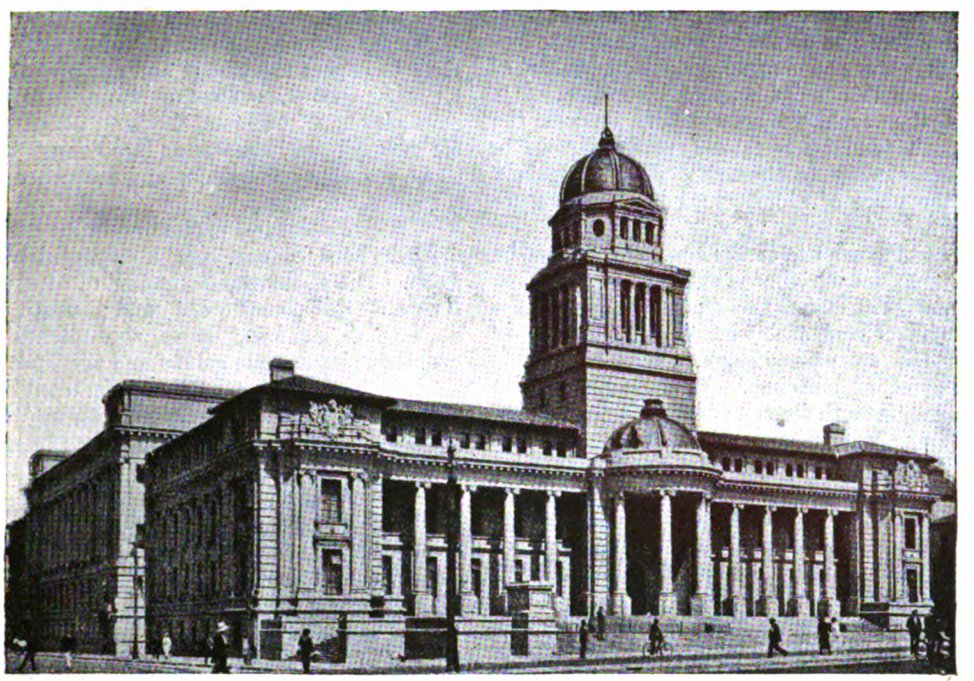
The question I have asked myself over and over again is, Did the architect rise to the occasion? Did he realise the chance the war had given him and his profession, or did he creep out from his seclusion and practise his art with a benumbed and slow-moving mentality—taking, so far as his opportunity permitted, full advantage of the difficulties and trouble of the State—first to practise his art without consideration of the consequences, and secondly to earn fees, large ones if possible, without a thought of his master, the State, and without a thought of the effect of his actions upon the future of the profession?

One would ask again, does the architect occupy the place that is his due in the social structure of to-day, and has he taken his share in the burden of the present time? Is he in experience, and knowledge, and by training, competent to undertake the duties he owes to the State? Is he serving his profession in the fullest sense, without giving his proper quota to the matters which are vital to the State?

It may be that the answers to these queries are in the negative. It is possible that some may argue that the answers to these questions are in the affirmative. That I feel would be the unkindest thing to architects and architecture, for should this be the case truly there is no hope for the sorry plight of the profession.

I want to be understood as discussing all these matters with the rank and file of the profession, not with the great and mighty whose names are known throughout the length and breadth of the Empire, not with the eminent and distinguished or the well-established and affluent, but with the great body of the profession. The struggling and trained, efficient young practitioner, the backbone of the profession. Those who produce the homes and halls for

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the million and into whose hands are placed the life and vitality of the future generations of the people. Those who produce the palace, the mansion, and the monument require no defending. They want no advertising, they desire none, it is pressed upon them, they are above the mundane things of life, and have no time for the consideration of matters vital to the rank and file of the profession.

It is kindness to be cruel, and to face the fact that so long as the architect has plenty of work, that is to say professional work pure and simple, he thinks little of matters outside, such things are beneath his notice.

The fact is the architect consistently ignores the science of his craft (and he is taught studiously so to do) and clings tenaciously to the art. He is supinely unconscious of the place of architecture in the structure of modern life.

When I refer to the science of the craft it must not be considered that one means the science of building or that of construction, but rather the scientific place in the world of the architect and architecture. What part in modern life does the art of architecture take, and what part the real science of building? What consideration does the profession through its representative bodies give to the science of the profession, and what consideration to the art? Is the latter not considered the all of architecture, and the former neglected, and its study untended and uncared for? Where does the art of architecture begin and where does the science end? Is the art of the craft properly married to the science, or, if ever married at all, has it not been divorced?

One, as already stated, hears much of educating the architect of the future. Will that education be sound if no place is given to the consideration of the immense value of the art of building to modern everyday life? Is the architect of the present day fully conversant with this phase of the subject? Has the subject of the education of the general public as to the value of architecture in modern life been given proper consideration by the profession? And, if not, is this not a matter which should be taken in hand at once?

I would wish the members of the profession very seriously to consider whether sufficient time has not already been spent resting contentedly upon the feather bed of the art; and that the profession has forgotten, if, indeed, the lesson was ever learnt, that the people live in houses and not upon them. The propagandist and housing reformer preached for many years before the outbreak of the war a new system of area development and a new system of house planning. The architect—that is to say, the gentleman who works entirely for fees—came into the thing just after the signing of the Armistice.

Did he assist to any appreciable degree those who had preached for years, or, in fact, the State, which was faced with the gigantic task of overtaking the enormous arrears in housing for the people? Or did he forget his responsibilities to the State, if, indeed, he ever fully appreciated them, and his duty to architecture, and allow his pencil to run wild in the dream of the artistic home? And did he forget that the bankruptcy of the State would be the inevitable result? All these things require serious and concentrated study. The architect must face the prime responsibility of the financial disaster of the great State housing scheme.

I am loath to blame the members of my own profession for that which is not rightly theirs, but a careful review of the whole of the circumstances surrounding this great effort upon the part of the State must reveal a carelessness and culpability of the most suicidal form.

No greater and no finer effort to grapple with one of the greatest of social problems has ever before been made by any country in the history of the world. No more magnificent conception could have been possible. This colossal effort was made when the finances of the country were well nigh the point of exhaustion; but those responsible for the launching of this great scheme, designed to produce half a million homes in a few years, had every reason to be proud of their offspring.

Those at the head of this gigantic undertaking I do not acquit of all blame for the difficulties that arose during the putting of the plan into execution. Some of the initial steps taken without a careful scrutiny of the forces, dormant though they were, waiting to waylay the unwary, were faulty, and provided the opportunity to all those who considered any State effort fair game for plunder, and that opportunity was taken advantage of with celerity.

In my opinion the State had a perfect and justifiable right to expect the fullest and completest assistance from all those who were fitted by training to help in the consummation of this great housing effort. That the State did not get this assistance is common knowledge to all those who have the slightest intelligence or who stop for a moment to think.

The architectural profession in its excitement to grasp a great flood of new and unexpected work overreached itself. Set about the designing of ideal homes and ideal lay-outs, the pencil went wild; artistic houses were to be erected at last; steep roof-pitches could now be adopted; picturesque gables and the little artistic features so dear to the heart of the artist could be incorporated without the slightest danger of being "turned down."

It is seriously suggested that the architect, as the fountain-head of this national effort, the rapid and pracical execution of which was to stem, and, if possible, dissipate a very serious and dangerous menace to the State, should have practised his art with a very keen and critical eye upon the serious financial side of the problem.

It is just at this point that the architect and the profession missed the opportunity; the danger was not even seen; the architect, I believe, would largely argue that he was not called upon to view this side. That is where the architect and the profession went wrong.

The great public for once were to be favoured with an exposition of the real value of architects in a great housing effort. The effort to a point has been successful, if the work only is viewed, apart altogether from the question of cost. Is that quite satisfactory? What architect in private practice would be successful (speaking again to the rank and file) if he refused or neglected to consider the important question of cost?

The unfortunate feature of this great National Housing Scheme is that the architect's example was followed throughout all the arms of the industry. Architects profiteered in that their art occupied too large a part in this great undertaking. They expected to get from something more than that something could give.

Other arms followed, and in their various spheres bled white this tremendous effort to house the people.

Two hundred millions capital loss will be the price to be paid for this great effort to correct the errors of generations in the housing of the people.

That would not have been too great a price if the entire scheme had been brought to fruition; but it has not, and the measurement in number of houses that this scheme falls short of fulfilment will be the extent of the responsibility of the entire industry, and the architect takes his full share of this liability.

Housing provision for the people necessarily will have to be continued. Exactly how is not at the moment a matter I care to discuss. Houses must be provided in sufficient numbers, and I sincerely trust that the great national effort, so far as it has been carried into effect, will guide and control the methods of house building in the future. Whether architects in the future will be engaged to the extent that the profession hoped and expected is another matter.

Is there room for proper and efficient architectural intervention in a proper and economic provision of housing for the people?

Certainly there should be, and it is the duty of the architect to the State to formulate proposals whereby the architect comes in as part of economic National Housing.

If the employment of professional assistance renders a building proposal uneconomic, there is fault somewhere,

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where is it, the profession must investigate and correct the wrong.

Economic house building must be, if possible, with architectural assistance; if not, without.

The duty of the profession to the State is clear in this matter. Will the profession act, or will that artistic temperament recoil at such a nauseous task and force the great public to be denied the services of the members of the profession?

I trust that these few fragmentary remarks will not be taken unkindly. They are delivered with the intention of assisting the profession to occupy a more important and a more recognised, and, shall I say, a more popular, position in the estimation of the people.

Many of my remarks may bear harshly upon numerous members of the profession. Many of my statements may be incorrect when applied to a very large number of the members of the architectural profession, and may be resented.

If the effect of hard words be to infuse some life into the rank and file of the profession, I shall have succeeded in my task to a point.

I am too hardened to be hurt by hard thoughts or bitter comments. To move the members of my profession into action, to galvanise into life some of the pious wishes of the many, and to succeed in winning some better universal recognition for architects and architecture will be sufficient payment for my slight, if somewhat caustic, talk to the members of the Society of Architects this evening.

Discussion.

Mr. L. S. Sullivan, in proposing a vote of thanks, said it seemed to him that the President had been trailing the tail of his coat, and it was up to the meeting to tread on it if they could. Sir Charles referred to the services of architects not being utilised at the outbreak of war as being probably due to their own fault. Architects offered their services, but with a view to obtaining full fees; and, as a consequence, they did not get the benefit they would have done had they been generous. A reference had been made to professional advertising. There were, of course, various ways of doing this: one of them might be by designing dolls' houses. Probably if an advertising expert was called in, some good tips would be obtained. There could be no doubt that architectural bodies tended to become mutual admiration societies. Their meetings reminded him of two poems. The first was the pomp and circumstance alluded to by Gilbert in "Iolanthe"; the other was the verse of Omar Khayyam beginning: "Myself when young did eagerly frequent doctor and saint and heard much talk about it and about, but evermore came out by that same door as in I went." It was rather like walking in by one side of a revolving door and coming out by the other. Architects might make themselves of infinitely more use to the State than they did. Before the war it was not an economic proposition to employ an architect for the long rows of jerrybuilt houses: so he was not so employed. Personally, he could not see why the professional scale of charges could not be modified in some fashion to enable the jerrybuilder to command the services, the advice, and the beauty given by the employment of an architect. After all, houses were small things, and when in long rows they were repetition work. The architect could point out to the jerrybuilder various ways in which money could be saved.

Sir Henry Tanner congratulated Sir Charles Ruthen upon bringing forward this subject. At the Royal Institute anything in the way of business was ignored. But architects could not get on without business nowadays. Their clients were usually business men. If the Institute and the Society of Architects could make it well known that architects do their level best to give such men what they want and on a paying basis, it would be a great step forward. With regard to the connection of the architect with the State, his own opinion was that it would be hopeless to employ outside architects on the ordinary work of a department. As to housing, it seemed to him that the President was putting his blame on the wrong horse. It was the D.B.M.S. which put up the prices, not the architect. If bricks, for example, could have been bought in the open market, they would not have risen to more than £4 a 1,000. The £1,000 workman's house was out of the question: but he failed to see how the architect was to blame for it.

Mr. E. J. Sadgrove protested against the suggestion by Sir Charles Ruthen that architects should have been acquainted with the possible bankruptcy of the State. How could architects have got to know of it? He also totally disagreed with the assertion that architects were responsible for the high cost of housing. Architects had been called in to do their best, and they did it. There were many causes for that high cost, as Sir Charles must know better than anybody. The Trade Unions were largely to blame, and also the cost of materials. He (Mr. Sadgrove) resented the imputation that architects regarded the State as fair game for plunder. After some trouble the profession got the State to allow them to take a hand in the designing of houses, but many obstacles were placed in their path. If the architectural profession had been unified it would not have been treated in the way it was. His own belief was that Sir Charles did not really believe half what he had said, and the profession would not admit he was right in condemning architects for any faults in the housing failure.

Mr. H. M. Robertson, Mr. Ellis Marsland, Mr. W. H. Leverton, and Mr. T. Schaerer also spoke.

Sir Charles Ruthen, in the course of his reply to the points raised, said he considered it disgraceful for an architect to admit that he did not know of the impending bankruptcy of the State. The existence of the D.B.M.S. failed to account for the high price of things like bricks and baths: indeed, if the Department had not existed it would not have been possible to buy bricks even for £4 a thousand—something more like £10 would have had to be paid. The D.B.M.S. may have kept them at that figure, but it prevented them going beyond it. Nor was the Department responsible for keeping up the prices of materials which it did not own. Only the fear that things like baths might arrive from somewhere else brought the prices down. There was no subject he would better like to discuss with the parties responsible than this one of prices. It was perfectly insane for architects to say "I have had nothing to do with the cost of building, I merely drew the plans." The Government Department concerned was guided by the best professional advisers. Probably no man living had entered more of these houses than himself, and he could say that the finest housing scheme he had inspected in this country contained the simplest houses: they had not got a single gable or a single projection, but they contained the finest rooms. The beauty of that whole scheme was obtained by the distribution of the houses on the site. It was wrong for an architect to think he must introduce a bulge here and a break there. If there was money to spare it should be expended in giving the people a little extra accommodation inside and not on ornament. For architects to take no responsibility for the high cost was wrong. Admittedly the Government had a little to do with the blame. The operatives put as little as possible into their work. That was their profiteering. But the architects said: "I will get as much out of it as I can." And that was their profiteering. He did not blame only the architects. But they were the leaders, and everybody followed. It was impossible for the country to go on providing houses which showed an annual loss of £60 each. Notwithstanding what some people had said, the cost of housing had come down during the last nine months. This was due to a series of steps which, it was obvious, should have been taken a very long time ago. If the leaders of the profession had acted rightly there would have been no £1,000 houses. Only for the steps taken there would have been £2,000 houses to-day. The work given out had exceeded the capacity of the industry, and the output of labour was at the same time dropping and dropping. There seemed now some hope for house building. Nine months ago he had said there would

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be a £500 house within the year. To-day a £475 house was not an impossibility, and contracts for that sum had been very recently signed by the Ministry. Houses were now being erected in London for within £25 of half their recent cost on the same site to the same plan by the same contractor. The only method to obtain houses was to reduce the volume which was being piled on to the industry. A man did not work the harder if he saw a lifetime's work ahead of him.

The Architectural Association.

The meeting on Monday evening last of the Architectural Association provided a pleasant variation to the customary type of lecture, for it might be described as a talk at the piano rather than as an address. It was none the less a serious attempt by an exponent of one form of art to explain his craft to the students of another. All who were present must agree with the remark Mr. W. G. Newton, the President, made in putting the vote of thanks, that he never remembered one and a-half hours to have passed more quickly. The title of this "Special Lecture" was "Building in Sound," and it was delivered by Mr. Frank Hutchens, of the Sydney Conservatoire of Music.

The subject proved, he said, such an interesting and engrossing one that he soon realised he could not go into the matter fully. He became convinced that the more one knew about the sister arts the better one's work would be. Music acted as a sort of mental stimulus, and greatly helped in thinking. Curiously, authorities on subjects like painting and literature possessed not merely a feeble knowledge of music but they exhibited a poor taste, and did not bring the same intelligence to bear on it as on their own arts. Architecture was the most concrete and music the most fluid of all art forms. The laws of music may not seem sometimes to be very intelligible, but they were always present. The same words were used as in architecture such as contrast, balance, tone, rhythm, and harmony. Those were fundamental things, and not invented. It was not known why music affected its hearers; it was a question of a sub-conscious self. Certain things carried certain different meanings. Some composers, if they had followed other arts, might have attained eminence as architects or poets or painters. The form of all good buildings was clear and obvious. In music, on the contrary, the form has to be unfolded as the piece proceeds, and the hearer must remember what has gone before and balance it with what he is hearing at the moment. If a composition lacked form and balance it would not stand the test of time.

Beethoven's sonatas were perfectly made, for he knew exactly where to stop and where to introduce relief to the ear. Harmony was to some extent a form of decoration, and must grow out of the melody itself. In Beethoven particularly they found that feeling of progress or advance towards some particular point of interest. There existed a curious hypnotic power in even rhythm and time. (Mr. Hutchens proved this by playing "The Song of the Hindu Merchant," by Korsakoff, and "Berceau," by Palmgren.) Modern music leaned towards impressionism. All music was romance, and could portray the emotions clearly, though with certain limitations. The sentimental ballad endeavoured to portray a very deep emotion and mostly failed, whereas the shallowness of ragtime succeeded. A tune could be made out of three notes. In most compositions one main theme recurred many times, but if repeated it has to be done differently. In that latter respect it was unlike a wallpaper. Mr. Hutchens played Beethoven's Sonata in C Major, Opus 2, No. 3, to show how very, very simple a harmony could be, for it consisted of only two chords, with a third simple idea as foundation for the whole work. Its opening theme was vigorous and strong, and the next was quiet and gentle. The subject had been deliberately chosen to afford strong contrast. Rest to the ear was given, just as rest to the eye in a well-arranged work of architecture. Sometimes an element of surprise might be introduced at the end. The composer of a great work escaped the obvious and trite by holding the hearers' interest to the very end. One of the great effects attainable in music was by a pause, a dramatic silence. Schumann was one of those who introduced sudden changes as a successful variation from the usual. But his method was quite another thing from being extraordinary just for the sake of being extraordinary or being merely clever. A fine composition was bigger than the man himself.

As an example of realism in music Mr. Hutchens played "The Clock," by Poldini. But realism had strict limitations, because of the fact that in Nature very few sounds could be called musical. It was bound to fail, for it seemed to deal in a different medium altogether. It used to be erroneously thought that all bird calls were a series of trills. Cyril Scott got nearer the real thing in his "Paradise Bird." More often an attempt was made to suggest aquatic effects like a waterfall or fountain, as by Débussy. Though a piece might not sound like falling water, yet it could produce the same effect on the mind. The piano was handicapped by the fact that, unlike the violin, its note died away.

Perhaps the greatest writer for the piano, said Mr. Hutchens, was Chopin. There was an effect of power in all his music, and much of it contained a fire and exhilaration for which he was not generally credited. Chopin's "F Minor Fantasie," for instance, seems to have been directly inspired by his patriotism and the war of that day. The highbrows refuse to see a story in any composition. But with this austere view Mr. Hutchens refused to agree. To illustrate his point he played the "Elopement Ballad" and Liszt's "No. 2 Rhapsody," which introduces the folk songs. In these, as in all his other pieces, Mr. Hutchens revealed a delightful delicacy of touch and sympathetic response to the aims of the composers.

A vote of thanks was proposed by Mr. W. G. Newton, seconded by Mr. F. C. Eden, and was carried with enthusiasm.

General.

The Governors of Lincoln County Hospital have decided to proceed with the extension of the hospital at a cost of about £12,000.

Mr. Albert Winstanley, Lic.R.I.B.A., Manchester, has prepared plans for a cinema and café which it is proposed to erect in Mardol, Shrewsbury, at a cost of about £20,000

Among those present at the funeral of the late Mr. Edgar Bundy, A.R.A., on Saturday, the 14th inst. Mr. Alan E. Munby, F.R.I.B.A., officially represented the Council of the Royal Institute of British Architects.

Dr. Percy Dearmer begins a course of public lectures on Fifteenth Century Art to-day, the 20th inst., at 5.30, in the Great Hall of King's College, Strand, W.C. The course, which will be illustrated by lantern slides, begins with two lectures on "Flamboyant and Early Renaissance Architecture," followed by three on Donatello and the other Florentine sculptors The remaining lectures will be devoted to painting in Florence from Masoccio and Fra Angelico to Uccello and Botticelli. Copies of the syllabus can be obtained from the Secretary, King's College.

The repair of the refectory of Chester Cathedral proceeds apace, and its west end is at last covered in again. "Disappointment has been expressed in some quarters," writes the Dean, "that the new section merely carries on the existing roof to the west wall, and is not more ornate in character and like what we can guess that the original roof may have been. The extension of the present roof was not decided upon merely on economical grounds, though I do feel that I am pledged not to spend money on the luxury of ornamentation, but our plans have all been submitted to the experts, including the Society for the Preservation of Ancient Buildings and Mr. Lethaby, the architect of Westminster Abbey. All agree that the plan of our own architect, Mr. Fyfe, is quite the best possible apart from all considerations of expense. The simplicity of the roof, which will be coloured white, will concentrate the eye's attention on the stonework of the great hall, all of it ancient and all of it beautiful."

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"A Layman's View of Architecture."

UNDER the above heading Mr. Samuel Smethurst read an exceedingly good paper before the Manchester Society of Architects, with almost the whole of which we are in hearty agreement. A big contractor who has been engaged in building all his life should, if he has any critical faculty, and that appreciation and love for his craft which alone can make criticism sound, be exceptionally well placed to see our weak points and tell us where our strength should lie. He is too well acquainted with modern requirements to complain because we do not produce in modern London a replica of an Italian city of the Renaissance; and he does not trouble himself, like an æsthetic expert, with dissertations on the subject of the nature of abstract beauty, or fundamental form in structure or any of the beautiful vaguenesses which occupy the minds of some literary and philosophical architectural critics.

We rather differ from Mr. Smethurst when he says that "The work of planning requires gifts of a very high order, but, as is often the case, the man who shines in this department lacks the ability to design a really beautiful building, and so very often resorts to gaudy ornament to give some sort of a finish to his work." We believe, on the other hand, that in almost every case we could tell from the plan of a building alone whether the architect could design a beautiful building, for planning of the best order is the necessary ground-work of all effect in building. Two men may produce plans which serve every practical requirement almost equally well, yet we may clearly see that one of them, while sacrificing nothing that is essential, has given us the necessary groundwork for architectural effect, while the other has overlooked possibilities.

Thus we may have a certain space allocated to a vestibule and hall, but in the one case an architect has so disposed the two spaces that one gives effect to the other, while the other has failed in imagination. We may have windows in two schemes, both so disposed as to light a room effectively, yet the one suggests architectural possibilities, while the other negatives them; and these and other points are so clearly expressed in a plant that anyone with a little knowledge can foretell what the architectural quality of the elevations is likely to be. But Mr. Smethurst is quite right when he says that "clients as a rule are more concerned about getting a well-planned and convenient building to enable them to carry on their business in the best way" than in obtaining a good artistic result. The misfortune is that they should not more readily understand that it is only by employing an architect of the first order that they can ensure this result. But the fault lies not only with the employer, but with the architect, for many architects have not the necessary knowledge of the utilitarian factors which should be essential factors, the best lay-out, or of the financial and other determining considerations which govern commercial buildings. This point is covered by a recommendation given: "my idea of architecture is that every time an architect gets a commission he has first to study the purpose for which the building is to be used and to go to any amount of trouble to ensure that he has got the best possible result." This, is in a sentence, the crux of the matter, and we should be inclined to say that any architect who did this successfully would ensure his own professional success, while no architect who had not acquired a mastery of what we should call the higher mysteries of planning could obtain the "best possible" results for his clients. If the latter on their part understood how an unskilful architect could waste their money for them, while preserving an appearance of economy, they on their part would think it worth while to go to any amount of trouble to select the best architect for their purpose. Building is a complicated matter, but it would simplify things if our clients could understand that there is no room in it for the specialist, and that the right man for any type of building is the one who has made the most exhaustive study of planning and who has at the same time the adaptability and thoroughness to master the fundamental considerations which govern a problem which is new to him. We do not quite agree with Mr. Smethurst when he suggests that possibly the best way to get the most suitable building for a purpose is to employ a combination of architects, one of whom may be stronger on practical points, while the other's ability may lean in the direction of more artistic qualifications. Such division of responsibility has its dangers, though to a certain extent it is safely covered by the abilities of the several partners in a firm. Even then a more natural and reasonable division seems to us that which separates the production of sketch designs from fully worked-out drawings with all their minutiæ, for many men are better qualified for the more imaginative work which has to be dealt with first than with the mass of detail which has to follow on. With Mr. Smethurst's suggestion that "there should be some machinery by which the preparations and picturesqueness of a street is maintained" we are in entire agreement, and also with his statement that "any architect worth his salt must think not only of his own building, but the group or street of which it forms a part." These things must be regarded as fundamental if we are in the future to have architecture worthy of the name.

The consideration of the effect of the whole, instead of an exclusive regard for the part, is as essential to satisfactory architecture as consideration for one's fellows is for social intercourse. Architects have too long designed street buildings as if their field of vision was limited by blinkers. It would do the profession good to build up continuous elevations of sections of our streets, as nothing could bring home to them more forcibly the difficulties which must be met and coped with before we can say we have mastered the problem of design as it affects cities. This and other points touched on in Mr. Smethurst's able and interesting paper are of the first importance to all of us.

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Illustrations.

WAR MEMORIAL ERECTED BY THE MIDLAND RAILWAY COMPANY. Sir Edwin L. Lutyens, R.A., Architect.

This fine and simple monument to railway servants who lost their lives in the war was designed by Sir E. L. Lutyens, R.A. It is a pity that a fine monument should be in close proximity to some very ugly buildings, which detracts and disturbs its effect.

FRESCOES IN LADY CHAPEL, ST. JUDE'S, HAMPSTEAD GARDEN SUBURB.
By Walter P. Starmer. Sir Edwin L. Lutyens, R.A., Architect.

The frescoes illustrated are designed and executed by Mr. Walter Starmer, and the chapel is completely covered with mural paintings in the following order: East End, New Testament Women; West End, Old Testament Women.

The East End is arranged as follows: Over Altar, Virgin and Child; Dome, Herald Angels looking down on Child; N. Wall, Parables about Women; S. Wall, Incidents about Women; Pendentives, Women's Work; Window Recesses, Virtues.

The West End is arranged thus: Wall, Samuel and Hannah; Dome, Various Representative Women; N. Wall, Wives of Patriarchs; Pendentives, Prophetesses.

AN ITALIAN CEILING DESIGN FROM AN EIGHTEENTH CENTURY DRAWING.

Notes and Comments.

The Late Ernest Newton, R.A.

We greatly regret to announce the death of Mr. Ernest Newton, R.A., which occurred on Wednesday last at his London residence, after five days' illness. It was known that Mr. Newton was suffering from pneumonia following an attack of influenza, but the seriousness of this condition was not generally realised. Though sixty-five years of age by the almanack, Mr. Newton was by temperament still a young man. His charming work has been long admired both inside and outside his profession, and materially contributed to the world-wide reputation of English domestic work. He carried on the banner of Norman Shaw—his master. The profession can ill afford to lose a man of his great skill and of such kindly, unassuming temperament.

Sir Charles Ruthen's Case.

Architects have, as might have been expected, emphatically repudiated Sir Charles Ruthen's aspersions on their work in connection with the National Housing schemes. Sir Charles says he has been misunderstood, but it is difficult to see how that can be in the face of the full reports of his speech which have been given in the Press. Whether the professional bodies with which he is associated can take any direct action we do not know, but he would at least close a deplorable episode in the best manner if he voluntarily resigned his membership of both the Institute and the Society. His relations with the Ministry of Health are matters which do not directly concern the profession, Sir Alfred Mond may or may not be satisfied with the results produced. But any influence Sir Charles had within the profession is now a thing of the past, and he can never look forward to regaining what he has lost, which he may or may not regret.

Registration and Unification.

Messrs. Cross, Searles-Wood, Hubbard, and Perks have addressed a letter to members of the R.I.B.A. on the above subject, to which is appended an opinion from Messrs. Sherwood and Co. on the subject of the possibility of obtaining a measure of Registration. We have always felt that the subject is being dealt with exhaustively by the Committee appointed, and are loath to criticise before we know all the facts. But we are inclined to be a little sceptical about the advantages of admitting all practising architects into the R.I.B.A., though we should certainly like to see the Society amalgamated with the Institute. We are also very sceptical as to the advantages of any measure of registration which would have the chance of being legalised, and the chief thing we see in its favour is if an attempt is made which fails the question may possibly be buried, giving us more time to devote to matters which are really of importance to us. We do not believe in the advantages of registration, but are quite prepared to fall in with what the majority desire. We agree with the signatories of this manifesto that the inclusion of a number of practically unqualified members in our professional body would conduce to weakness rather than strength. Still, if committees are appointed their members, who give an immense amount of time to details, should have fair play and sympathetic consideration, which they do not always obtain.

The Restoration of the Parthenon.

The question of restoring the north colonnade of the Parthenon has been under consideration for some time, and M. Balanos, the head of the Conservation Department of the Ministry of Public Instruction, has been seeking the advice of the most competent English and European authorities. Scaffolding has been erected, and it is proposed to proceed with the re-erection of the fallen columns and their architraves as soon as possible. Missing parts of the columns are to be replaced with a compound composed of limestone and cement. Previous restoration works undertaken in the early 'thirties were very badly carried out, and involved the use of new materials, but M. Balanos has carried out very successful restoration work both in connection with the Erechtheion and the Propylæa. It will always remain a moot question whether such work should or should not be attempted, and we suppose will remain so until the end of time. Restoration may either mean timely and conservative repair if undertaken early enough, or may cover what is in reality a vandalistic replacing of old monuments, which destroys their value.

Competition News.

Members of the Society of Architects are requested not to take part in the Seaford Lay Out Competition without first ascertaining from the Secretary of the Society that the conditions have been approved by the Council.

Members and Licentiates of the Royal Institute of British Architects must not take part in the Whittlesey War Memorial competition because the conditions are not in accordance with the published regulations of the Royal Institute for Architectural Competitions. A similar warning has been issued by the Society of Architects.

The Royal Institute of British Architects received on the 23rd inst. the following cablegram from the Mayor of Auckland, New Zealand, with reference to the proposed War Memorial Competition: "Auckland competition read following with answers questions due London end month stop question asked discloses hall required Foreign Zoology omitted from conditions stop this hall one hundred and thirty feet by sixty feet to be placed in schedule answers to questions question seven in first floor accommodation stop place similarly central hall and vestibule stop advise Society Architects and Architectural Press stop promoters much regret error."

The Lord Lester Memorial is to be erected at the north end of Portland Place, W., on a site provided by the Marylebone Borough Council. The work is to be proceeded with by Sir Thomas Brock, R.A.

The Lincoln Corporation have received the approval of the Ministry of Health for their outfall sewer scheme promoted to relieve unemployment, subject to the substitution of a 36-in. sewer for a 30-in. If the Council agree to this the work can start at once. The scheme is estimated to cost £31,700.

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Royal Institute of British Architects.

The sixth ordinary general meeting of the Session was held at 9 Conduit Street, W., on the 23rd inst. Mr. Paul Waterhouse, President, was in the chair.

The Hon. Secretary, Mr. Arthur Keen, announced the death of William Thomas Oldrieve, H.R.S.A., F.S.A.(Scot.), a Fellow of the Institute since 1906. As President of the Edinburgh Architectural Association he was a representative of that body on the present R.I.B.A. Council. Mr. Oldrieve was Godwin Bursar in 1886. The decease was also announced of Mr. William Samuel Weatherley, elected Associate in 1880 and a Fellow in 1886, and Mr. Arthur Floyd Trebilco, of Australia, elected Associate in 1911.

Professor William Rothenstein, M.A., Principal of the Royal College of Art, then gave a short address on the subject of

"Architectural Draughtsmanship."

Professor Rothenstein in his opening remarks explained that he was really there as the result of an accident. Some time ago he was going round inspecting the architectural drawings and discussing them informally, and he found to his surprise that architects liked painter-like things. It was suggested that he should give the Institute his views. In considering the matter he realised how very little painters and architects knew about each other. There were many new things about the modern world of art, and that ignorance was one of them. Painting and architecture had been closely united in the past. One of the main difficulties to-day was that there existed a misconception among a great number of architects as to what a painter-like and draughtsman's drawing really was. The painter's ideal is the intellectual admiration of the severe arts of the past and to reduce æsthetic formulæ towards a mathematical formula. Architects ought to sympathise with the thoughts of to-day. Painters envied architects their T-square; but on turning to architectural drawings one found them inclined towards some things which painters did not recognise as being vital to the spirit of the present age. Surely architects were influenced by the same movements as other artists! All artists approached the same reality from different angles. The mere exercise of good taste was never going to make up for the failure to use something they were burning to handle. It was an odd thing that the one fault he himself found in a great number of modern architectural elevations was that they missed the scholarship of the past art of any period, and also that austerity and those other qualities which he first expected would be the most attractive. Most of the best artists of his own acquaintance were brought up in architects' offices, where they were taught a great respect for the T-square. When architects handle a painter's instruments they ought to bring to bear on them their own birthright. But architects were not quite so much aware of the real art movements of their age as one would expect them to be. On taking from the Library some of the architectural publications and looking for the first time on the drawings he was appalled to see the absence of any serious influence of men whom painters acknowledged as representative of their day—men like Puvis de Chavannes, Burne-Jones, and Madox Brown. It seemed as if the trivial and less sincere painters figured most in an architect's eye. The nearer architectural drawings approach to architecture and the more severe, the more admirable in his opinion they seemed to be. When architects had a very severe architectural elevation he could not understand why they should not put in a landscape which had a sympathetic severity. If architects were going to try and bring in pleasant accessories it might be worth their while to try and understand what painters are now striving for. Even Norman Shaw put in things like trees in a manner one would not allow an amateur in a provincial art school to do. Personally, he would have expected architects who put in a landscape to put in one sympathetic to their building. It was a great mistake to put figures into an architectural drawing; but if they were put in, obviously their purpose should be to make the drawing more significant and dignified. Why should not their own buildings be respected as much as they respected the buildings of the past? With the aid of a T-square it was possible to obtain a beautiful swift line. Yet architects seemd to want to give up their marvellous inheritance. He would implore the very youngest to try and find out what modern men are thinking about. Personally, he was a passionate admirer not only of architecture but of buildings. He would love to draw every quoin in any old barn with perfect care, for it was impossible to draw any such building other than with reverence. There was a direct appeal in their severity. To regard mouldings without that reverence seemed to him a most unnatural offence. That architects should treat the work of their own craft lightly was a very great surprise to him. The greatest joy of his life was to sit near any old building and to draw it day after day. There was no doubt architectural drawing had been very perfectly practised in the past. Men then had such faith in everything they did, no element of decay came in. It was only when one came to modern days that people care so little about building that they want to make it picturesque. In the sixteenth and seventeenth centuries an architect's drawing was extraordinarily like that of a painter.

Professor Rothenstein concluded by showing a variety of slides taken of drawings from the Italians to the present day, and by commenting on the virtues or otherwise of each.

Discussion.

Sir Reginald Blomfield, R.A., who was to have moved a vote of thanks, sent a letter expressing his regret at being unable, owing to a cold, to be present. The matter of draughtsmanship and architecture was, he said, familiar to many of them. There had been competent architects who were poor draughtsmen, but the majority of good architects have also been excellent draughtsmen. Bramante, Peruzzi, the elder Sangallo, De L'Orme, Inigo Jones, Perrault, and most of the great French architects. In England, Cockerell, Burgess, Devey, Street, Waterhouse, Sir Reginald's uncle and Norman Shaw were all good draughtsmen. His own view was that it is difficult, if not impossible, for a man to be a great architect who does not possess the skill of his fingers which enables him to get his ideas on to paper without the handicap of clumsy and inadequate expression. The Frenchmen of the end of the seventeenth century had no doubt on the subject. The founders of the French Academy in Rome insisted on draughtsmanship as the basis of design, and Blondel repeated this in the following century; but by draughtsmanship they did not mean the catch-penny tricks of the Ateliers, the washings and sprayings into which architectural drawing has degenerated in France and America, and, unfortunately, in recent years in England. They meant sound, accurate, tenacious draughtsmanship, which shirked no difficulties, which was determined at all costs to get the thing right. They did not differentiate between the drawing required by the painter and that required by the architect. For both they insisted on a thorough training in drawing, not only for its value as a means of expression, but also as an essential gymnastic to develop in the student a sense of form and the power of discriminating between those subtle shades and *nuances* which mean all the difference between right and wrong in design. In Sir Reginald Blomfield's opinion, more attention should be paid to pure drawing in the architectural schools from this point of view, that is as a means of training the aesthetic and critical senses. But from this point forward painter and architect part company. The painter pursues his drawing for its own sake, as his actual means of expression, it is the complement and co-equal of his idea—but with the the architect drawing is only

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a means to an end. It is not his final means of expression, merely a stage on the way to the realisation of his idea in actual materials. The mistake too often made in schools was to confuse the means with the end. The care lavished on the wonderful drawings produced in competition is to the architectural mind dead waste of time, for the thought that should be given to the design is given to its presentation on paper. Stripped of the recognised devices of the modern architectural draughtsman, there is too often little left, and a draughtsman might remember the remark of Burgess, who said of an eminent colleague that it was a pity he couldn't build his cross-hatching The younger brethren should realise that experienced assessors are not taken in by these devices; what they want are straightforward geometrical drawings which show the design honestly and without any flourish of trumpets. Architectural illustration had unfortunately been so largely superseded by the short cut and the plausible look of the photograph that one seldom saw it nowadays. Photographs are generally misleading as to scale and many other points, and line drawings are much the most satisfactory form of illustration. In one of the first Arts and Crafts Essays, written about thirty years ago, Sir Reginald suggested "the line used in architectural illustration should be free, accurate and unfaltering, drawn with sufficient technical knowledge to enable the draughtsman to know when he can stop. The line should not be obstinate, but so light and subtle as to reflect without effort each thought that flits across the artist's mind." He still thought that to be the sort of drawing to aim at. Knowledge and understanding of what he is drawing is, of course, essential. It is given to few to draw architecture correctly by sheer accuracy of vision. Sargent did it in his ruins of Arras Cathedral, but then Sargent was a consummate draughtsman. For most there is but one road—incessant labour to correct one's views, train one's hand, and perfect one's critical appreciation of form.

Mr. H. Chalton Bradshaw (Rome Scholar, 1913), in seconding the vote of thanks, said that Professor Rothenstein's criticisms touched on matters which architects were constantly troubled with. His opinions and his advice were ones they were very much in agreement with, though, perhaps, not on all matters of minor detail. Young men entering the profession were faced with a big tradition and a vast array of drawings showing certain traditional ways which he must adopt or not according to whom he is working with and the work he is doing. Perspective drawing was not everything, and very few architects were really interested in it. They were much more happy about elevations and the plan itself.

Professor Gerald Moira spoke of the difficulty he knew architects had in making clients understand what they were driving at. It was perfectly impossible to make the ordinary layman grasp what was meant by an ordinary straightforward elevation. The only thing left was to procure a model or prepare a perspective. They ought to get back to the simple plan and straightforward elevation of the time of the Adam Brothers and Soane. The drawings for the Bank of England were an example of what plain straightforward drawing will do.

Mr. William Walcot said artists had to do their best and to be sincere about their work.

Mr. Theodore Fyfe explained that an architect was apt to consider his proposed building as rather a forlorn thing. Figures were introduced into the drawing partly to give scale and partly to relieve that bareness. Trees likewise were put in for much the same reason. Of course the idea might be altogether wrong. It was extremely disconcerting to be told that the painter was striving for something on totally different lines to those of the architect. A lot of architects, however, could not help feeling that a great many modern painters were wholly unintelligible.

Mr. E. P. Warren thought it was a little unkind of Professor Rothenstein to have selected so many "back numbers" to illustrate draughtsmanship of to-day. There was a tendency more and more to dispense whenever possible with perspective drawing, which was very often done solely for a commercial purpose, and was not very much use or help to anybody directly concerned. A drawing, perspective or other, which presents the actual physical facts of a building is the best form of drawing. He had recently been looking at some very delightful drawings of buildings in London from mid-seventeenth to early eighteenth century; very seldom, if ever, had he found a figure introduced. Loggan, in his views of the Oxford Colleges, puts in occasionally a tree or a wagon, but for the most part he represented a building *in vacuo*, and therefore the whole of one's attention was concentrated upon the building. Wren was not a great draughtsman, but he could express himself with extraordinary adroitness. Wren was a great master of detail and a consummate master of all the trades that went to make up a great building. Bodley, whose details and sections were of a charming sensitiveness, did not believe in sketching, but preferred a close scrutiny of a building.

Mr. Paul Waterhouse then put the vote of thanks, and it was carried with acclamation.

Professor Rothenstein briefly replied.

The Secretary then read the results of the

R.I.B.A. Prizes and Studentships.

The Essay Medal and Twenty-five Guineas.—Six essays were received for the Silver Medal, under the following mottoes:—

(1) Androcles, "Architecture, the Man in the Street, and Architects"; (2) Black Cat, "The Vault"; (3) Concrete, "The Influence of Materials and Forms of Construction upon Architectural Design, with particular reference to Reinforced Concrete"; (4) La Loi, "Logic in Architecture"; (5) Panic Fear, "The Imaginary Architecture of Literature"; (6) Serva me Servabo Te, "The Spirit of the Renaissance in Architecture and its Bearing on Modern Design."

The Council regret that they are unable to award the Silver Medal, and have awarded a Certificate of Honourable Mention to Mr. Herbert J. Harding, 2 New Square, Lincoln's Inn, W.C., the author of the essay on "The Imaginary Architecture of Literature."

The Travelling Studentships.

1. *The Soane Medallion and One Hundred and Fifty Pounds.*—Three designs for a central group of buildings for a modern non-residential University were submitted under the following mottoes:—

(1) B Minor, eight strainers; (2) Per Angusta, eight strainers; (3) Gold Diamond (device), seven strainers.

The Council have awarded the Medallion and, subject to the specified conditions, the sum of £150 to Mr. Alfred John Brown, 35 Handside Lane, Welwyn Garden City, the author of the design submitted under the motto "Per Angusta," and a Certificate of Honourable Mention to the author of the design submitted under the motto "B Minor," Mr. Thomas E. Scott, A.R.I.B.A., Northern Polytechnic Institute, Holloway.

2. *The Owen Jones Studentship and One Hundred Pounds.*—Two applications were received from the following gentlemen:—

(1) W. J. Knight (A.), three strainers and three framed drawings; (2) B. W. Ridley (A.), four strainers.

The Council have awarded the Certificate and, subject to the specified conditions, the sum of £100 to Mr. W. J. Knight, A.R.I.B.A., Royal College of Art, South Kensington.

3. *The Henry Saxon Snell Prize of Fifty Pounds.*—Two designs for an Asylum for 200 aged and infirm poor were submitted under the following mottoes:—

(1) Grenade (device), six strainers; (2) Staff, five boards.

The Council regret that they are unable to award the prize, but have awarded a Certificate of Honourable Mention and £5 to Lieut. K. H. Read, A.R.I.B.A., O. i/c. School of Building, Educational Training Centre, Thornhill, Aldershot, the author of the design submitted under the device of a Grenade.

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4. *The Pugin Travelling Studentship and Seventy-five Pounds.*—No drawings were submitted in competition for the Pugin Studentship.

The Grissell Gold Medal and Fifty Pounds.—Four designs for a Mooring Mast for an airship in connection with an hotel accommodating fifty passengers were submitted under the following mottoes:—

(1) Cavan, five sheets; (2) Job, three sheets; (3) Nike Apteros, three strainers; (4) Spero, two sheets.

The Council regret that they are unable to award the prize.

The Arthur Cates Prize of Thirty Pounds.—No drawings were submitted in competition for the Arthur Cates Prize.

The Ashpitel Prize, 1921.—The Council have, on the recommendation of the Board of Architectural Education, awarded the Ashpitel Prize (which is a prize of books, value £10, awarded to the candidate who has most highly distinguished himself among the candidates in the Final examinations of the year) to Mr. Lawrence William Ingham (A.), of 1 Strathmore, Sutton, Co. Dublin, probationer 1905, student 1907, and who passed the Final Examination July 1921.

R.I.B.A. Associates' Meeting.

On Tuesday, the 24th inst., there was at 9 Conduit Street, W., a general meeting of Associates, which had been summoned to discuss a report prepared by the Associates' Committee on the subject of Unification and Registration. Mr. Stanley Hamp, the chairman of the Committee, presided. The meeting was a very full one, and included many representatives from the provinces.

The Committee, it may be recalled; was appointed at a specially convened meeting of Associates held at the R.I.B.A. on June 7, 1921. Its purpose was to go into the Unification and Registration Committee's "Scheme A," which proposed to bring all the architects of the United Kingdom into membership of the R.I.B.A. as the basis of unification. The Associates' Committee discussed the scheme with the Associates of many of the allied societies. After fully considering the views of all concerned, and having regard to the fact that sacrifices will be necessary by existing members of the R.I.B.A., the Committee arrived at five principles as the basis of their proposals. It was these principles which formed the subject of a long and, at times, rather warm discussion on Tuesday evening. As the meeting was of a private and confidential nature we are not at liberty to give more than a general account of it.

The main point of argument was whether there should be three classes or four classes of subscribing R.I.B.A. members. The Committee had themselves been originally in favour of the creation of a fourth class; but that was before they had received the emphatic reports of their members who had attended conferences in the provinces.

Mr. Herbert A. Welch, in proposing the adoption of the report, said that it was not an Associates' matter merely—there were the interests of the whole profession at stake. It would have been the simplest matter in the world to draw up proposals which involved no sacrifice on the part of the Associates. But the committee took the view that it was far better to make big sacrifices now in order to bring in all the architects of this country by making it sufficiently attractive to them to join. That view was held particularly strongly by their provincial members.

Mr. G. Leonard Elkington, in seconding the adoption of the report, spoke of the extraordinary complexity of the problems presented.

The meeting agreed almost without discussion to certain of the principles, as that the R.I.B.A. must be predominant; that admission to the Fellowship class shall be by examination of qualification; that admission to the Associate class shall be by examination only except as provided for in the proposed new Constitution, and that the aim should be a Registration Act.

The most constructive proposal made at the meeting was that all Associates who have become Associates by virtue of passing R.I.B.A. examinations should have the right to add the word "diploma" after their names. This amendment, which was carried unanimously, distinguishes the Associates who have only won their spurs after much labour from those who enter their class on other qualifications. And it does this without forming a new class of "Members" which might be mistaken by the public for the highest grade of the Royal Institute. Some of the members did not appear to think this proposal was sufficiently generous; but the general feeling was that the most the Associates could be expected to do would be to admit new members in that manner. On the other hand, another section were unwilling to accept the Committee's proposals at all unless there was some definite assurance that they would result in Registration by Act of Parliament. As there was no prophet present, this guarantee could not be given.

The meeting was adjourned after 10.30 p.m., leaving the business with somewhat frayed ends. Presumably when the next meeting is called after the Associates' Committee have had time to digest the ideas put forward on Tuesday last it will be possible to tidy everything up.

Forthcoming Events.

Saturday, January 28.—St. Paul's Ecclesiological Society. Annual meeting at 7 St. Andrew's Street, Holborn Circus, E.C. 8 p.m.

Monday, January 30.—Architectural Association. Meeting at 34-35 Bedford Square, W.C. Paper by Mr. H. B. Creswell, F.R.I.B.A., entitled "Ourselves." 8 p.m.

Wednesday, February 1.—Royal Archæological Institute. Meeting at the Society of Antiquaries, Burlington House, W. Paper by Mr. G. C. Druce, F.S.A., entitled "Noah's Ark and other Tales illustrated in Mediæval Art." 4.30 p.m.

Thursday, February 2.—Concrete Institute. Annual Dinner at the Savoy Hotel, London, W.C. 2. 7.30 p.m.

At a special meeting of the Council of the Society of Architects held on January 18, a resolution was carried unanimously that they dissociate themselves from the views expressed by Sir Charles T. Ruthen, President of the Society, in his paper on "The Architect and the State," particularly as to the responsibility of the architectural profession for the failure of the national housing scheme, and from the implications as to profiteering by architects in connection therewith.

A meeting of Catholic clergy and laity of the Liverpool archdiocese, held at the Convent of Notre Dame, Mount Pleasant, decided to open a fund for the building of a cathedral in Liverpool, as a memorial to the late Archbishop Whiteside. A large committee was appointed to carry out the scheme.

The annual provincial conference of the Royal Institute of British Architects will be held on June 9 and 10, 1922, at Cardiff. The organisation of the Conference has been undertaken by the South Wales Institute of Architects, an allied society of the R.I.B.A. Members are particularly requested to bear these dates in mind, and to endeavour to keep them free from other engagements so that they may be able to attend the Conference.

Mr. William Robert Colton, R.A., of Hughenden, Bucks, and of St. Mary Abbots Place, Kensington, a Vice-President of the Royal Society of British Sculptors, who died on November 13, aged fifty-four years, left estate of the gross value of £19,742, of which £7,192 is net personalty. He empowered his trustees to present to the nation any ideal work that shall not have been sold and disposed of within two years after his death, his trustees to be the absolute judges as to what is "ideal work."

The Trustees of the Imperial War Museum consider that it is desirable to have a complete photographic record of all war memorials which have been erected in various parts of the United Kingdom and Colonies. To achieve this object it is requested that all authorities concerned should supply photographs on mounts eight inches by five inches, with particulars on the back giving the date of the unveiling ceremony, name of sculptor or designer, and any other details of interest. Communications should be addressed to the Secretary, Imperial War Museum, Crystal Palace, S.E.

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London Art Galleries.

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An exhibition of exceptional interest, especially on the technical side of the painter's craft, was opened on January 18 at Walker's Galleries, its subject-matter being the paintings of the late Frederick William Hayes, whose dates are 1848-1918. This may be therefore considered as a memorial exhibition of one who, as has been well said, "if not so widely known as some of his more popular *confrères*, was surpassed by none of them in the sterling sincerity of his work." There are seventy-two of his paintings shown here, including pastels, water colours, in which Hayes was thoroughly at home, and the method which has been called "thin oil," to which I shall direct my readers' special attention, as it was, I believe, peculiar to this artist and is of considerable interest.

The majority, in fact, of the paintings now on view were painted in this manner, the method used being, as I gather, to stretch white cartridge-paper over ordinary canvas, which must be then properly "sized." Main lines can then be sketched in with a fairly hard pencil, while this artist next washed in his tones and masses with a broad hog-brush, following up the details with smaller brushes, but in both cases using freely turpentine as his medium instead of water or oil. The result was a process which may be not unfairly described as a half-way house between oil painting and water colour; and the result is in most instances satisfactory. The Editor of "The Connoisseur," in his appreciation of this artist, remarks that "Hayes' range was not wide, but the intensity of his vision more than atones for its circumscription; and it is refreshing, in an age that is overgiven to scamping detail on the plea of attaining breadth, to see his beautiful renderings of rocks and grasses and other minutiæ of nature, all perfectly observed and rendered without the sacrifice of atmospheric truth." Mr. Reginald Grundy adds: "Perhaps the greatest charm of Hayes' work is its unstudied freshness. He gave play to his emotions easily and naturally, so that his creations impress one as spontaneous utterances. He is at his best when he is most unpremeditated, and consequently at his highest in those small direct transcripts from Nature where the hues of earth, sky, and sea are given with peculiar zest and vividness. These he painted in the 'thin-oil' method, which he made peculiarly his own."

Frederick William Hayes was educated as an architect, but, taking up painting seriously, he studied under that sound artist Henry Dawson; but he was a many-sided man, and though he had exhibited in our Royal Academy as early as 1872, and was one of the founders of the Liverpool Water Colour Society and a member of the Royal Cambrian Academy, he also wrote plays, novels, and works on social reform. His works are in the Victoria and Albert Museum, the British Museum, the Galleries of Birmingham, Liverpool, Glasgow, and Dublin, so that his work was appreciated in his time, though that appreciation is increasing. I shall leave for a later notice the water-colour drawings by Percy Lancaster which are now occupying the large room in Walker's Galleries.

I reserve also for a fuller notice later an interesting exhibition at the Brook Street Art Gallery of the work of Robert B. Martineau, friend and pupil of W. Holman Hunt. At the Forum Club two lady artists, Miss Sybil Dowie and Miss Boughton-Leigh have been holding a joint exhibition of work, the former being most successful with her flower studies and the latter with studies from the Cotswold country ("Gossips" and "The Mill") and Blakeney (studies of boats).

It is interesting to note that the late Mr. Peter Graham, R.A., left personal estate of the value of £133,668 when he died last year at the age of eighty-five. This large fortune for an artist may be compared with Sir John Millais, who left £98,000, and Sir Laurence Alma Tadema, who left £58,000, both industrious workers.

S. B.

The R.I.B.A. Prize Drawings.

The drawings submitted for the various prizes are somewhat disappointing, and the Silver Medal has been withheld, while no competitors have entered for the Pugin studentships, a sign that this most valuable section of study is being neglected by the present generation of students. It cannot be too strongly pointed out that the revival of our national architecture under Shaw, Belcher, and others in the 'eighties was closely connected with the study of our traditional architecture and the knowledge gained by close study of old buildings; and that this knowledge cannot be adequately replaced by studio studies and the cult of the *esquisse*, valuable as these are in their place.

For the Soane Medallion three designs only have been submitted, the successful competitor being Mr. Alfred John Brown. The subject set was a central group of buildings for a non-residential University. The author's plan shows a circular central hall, flanked by a segmental lecture theatre at one side and a Court of Honour, contained between two side wings, on the other. In front of this is the entrance, portico, and vestibule—and at one side the Vice-Chancellor's rooms and Registrar's accommodation, the latter forming one of the projecting wings enclosing the Court of Honour. In rear are the Faculty Rooms, the Senate Room, and Members' Club Room, the latter forming the other wing to the Court of Honour. The elevational and sectional treatment is very dignified, simple, and refined, possessing a refreshing quality of breadth. Whatever else the year has produced, this is a design well up to the best traditions of the competition.

The design submitted, under the motto "B Minor," by Mr. Thomas E. Scott, shows an octagonal hall converted internally into the form of a Greek cross, the arms of the cross forming columned recesses, three of which form galleries. Areas are formed at the four diagonal angles, and round these are situated the smaller rooms which surround the hall in an octagonal ring. The elevational treatment, though showing refined detail, is handicapped by the immense and quite unnecessary height given to the hall, which would give a room of very doubtful acoustic properties at an enormous proportional expenditure. The portico, breaking through the lower range of buildings, and rising above them, is an awkward piece of composition. The design is, however, a praiseworthy effort.

In the last design submitted, under the device "Gold Diamond," the author has submitted a plan of a cruciform shape, the Crush Hall, Senate Chamber, Reception Room, and Lecture Hall filling in the four arms of the cross. The design is carefully worked out, but is lacking in inspiration. Its author is not quite up to tackling so ambitious a problem.

For the Owen Jones Studentship two sets of drawings have been submitted, and the successful candidate is Mr. W. J. Knight, A.R.I.B.A., of the Royal College of Art, whose drawings show a scheme for the polychromatic decoration of a modern building, most beautifully rendered, but conclusive to our mind of the disadvantages attending the use of a large amount of colour in external decoration. His remaining drawings show details of the Choir of San Vitale at Ravenna and the tomb of Galla Placidia in the same city. Both are almost perfect examples of draughtsmanship and the use of colour.

Mr. Ridley has been a little unfortunate in his choice of subjects, which comprise the wall decorations of St. Mary Aldemary, one of Wren's pseudo-Gothic churches; the Chateau of Blois; the Chapel of the Twelve Apostles; a measured drawing of a fresco in Cromwell House, East Grinstead; and the doorway to a Concert Hall, the last being a study in design. Both in his choice of subjects and his treatment of them Mr. Ridley is outclassed by the winner.

It will be seen from the foregoing remarks that this year has been a disappointing one, the only outstanding features of which are a really fine design for the Soane Competition and an excellent set of drawings for the Owen Jones Studentship.

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Correspondence.

Architects and Housing Schemes.

To the Editor of THE ARCHITECT.

SIR,—The attention of the Council of the Royal Institute of British Architects having been drawn during the meeting held on Monday, January 23, to the address recently given by Sir Charles Ruthen, it was resolved that publicity be given to the following resolution in reference to the grave charges and insinuations contained in that address:—

(1) That regarded as the utterance of the President of the Society of Architects, this Council considers that it has been adequately and appropriately dealt with by the Council of the Society.

(2) If it may be viewed as the utterance of a Government official, the opinion of this Council is that it is an undignified departure from the best traditions of the Civil Service, as well as an unwarranted attack from an official quarter upon a whole profession whose interests the R.I.B.A. is pledged to protect, and those in higher authority are invited to give consideration to it.

(3) That though the charges are so general, and expressed with so much animus as to be unworthy of serious attention, the Council, in view of the fact that they were the utterances of a Fellow of the Royal Institute, has called upon Sir Charles Ruthen either to present to the Council such definite allegations as will enable it to take its own proper action, or to tender a complete withdrawal.

Yours, &c.,
IAN MACALISTER, Secretary.

9 Conduit Street, Regent Street, W. 1,
January 24, 1922.

Sir Charles Ruthen's Charges against Architects.

To the Editor of THE ARCHITECT.

SIR,—Sir Charles Ruthen's extraordinary address to the Society of Architects on the 13th inst., in which he charged architects with being responsible for the failure of the Government housing schemes, has naturally raised the indignation of all architects, whether they have been engaged in the carrying out of housing schemes or not.

We challenge Sir Charles Ruthen to find any house erected in South Wales under the Ministry of Health that shows the slightest appearance of an architect's pencil "run wild in the dream of the artistic home."

On the contrary, the poor appearance of the majority of these houses, caused chiefly by the restrictions of the Ministry of Health, has brought unjustifiable criticisms on the architectural profession.

Sir Charles further said that the "State had a right to expect the fullest assistance from all those who were fitted by training to help . . . in the great housing effort," and that "the State did not get this assistance."

The South Wales Institute of Architects has repeatedly urged from the very first that the services of those "fitted by training to help"—viz., qualified architects only—should be engaged.

Sir Charles Ruthen knows better than anyone else how seldom this has happened in South Wales, and on behalf of the members of the South Wales Institute of Architects we strongly repudiate his most unjust remarks against his own profession.—Yours, &c.,

H. C. PORTSMOUTH,
President.
IVOR P. JONES,
Hon. Secretary.

To the Editor of THE ARCHITECT.

SIR,—Some of the statements (or mis-statements) in Sir Chas. Ruthen's address to the Society of Architects have caused a universal outburst of indignation in the profession. His remarks to the effect that architects have "allowed their pencils to run away with them," have "profiteered," have "worked for fees alone," and were "primarily responsible for the financial disaster, &c.," are not only extremely injurious but notably inaccurate.

In the first place, it should be realised that a very large proportion of the national housing schemes has been carried out by State or municipal officials. In the case of the remainder many architects have (unfortunately) followed the lead of the borough surveyors, and have designed "brick boxes with slate lids."

So far as I can ascertain, there are very few schemes in the country which display any architectural treatment, and fewer still which include decorative features, good or bad, wasteful or otherwise. Some of the earlier examples did, perhaps, err in this respect, notably the schemes carried out by the Government Departments.

In any event, it must not be assumed that "architectural" effects can only be obtained at a considerable extra cost. On the contrary, it can be shown in some cases that conveniently planned and well-designed cottages have cost no more—in some cases even less—than ugly and ill-planned structures.

In view of the present financial stringency, economy is admittedly of paramount importance, but surely no enlightened being (architect or layman) will contend that the question of architectural amenities should be entirely ignored, or that we should be justified in covering the country with unsightly erections and incur the execration of posterity.

In rebutting these unjustifiable aspersions on the profession it should be made clear to the uninitiated that Sir Charles owes his present position to his commendable war services, and that his professional status is not such as to entitle him to assume the roll of mentor to his professional brethren.—Yours, &c.,

Birmingham. RUPERT SAVAGE, F.R.I.B.A.

Unification and Registration.

To the Editor of THE ARCHITECT.

SIR,—The above-named subject is of such interest to architects generally that I feel disposed, if you will allow me, to "butt in" with a few remarks thereon.

I have perused the correspondence which has appeared on the subject of the R.I.B.A. Journal and in the professional journals, and have arrived at the conclusion that the proposition is at present of an indefiniteness that fully justifies a demand for greater clarity.

Is it, or is it not, the accepted policy of the R.I.B.A. Council to attempt to gather into the fold of the Institute, subject to certain protective provisions, all architects now outside that fold, and to permit this *before* "registration" is certain of attainment; and if certain of attainment, is it known how long an interval of time will elapse between certainty and achievement?

A recent pamphlet, signed by Messrs. Cross, Searles-Wood, Hubbard, and Perks, contains a letter from Messrs. Sherwood & Co., Parliamentary Agents, in which the latter state that in their opinion it would be "impracticable at the present time to obtain legislation on the lines you propose."

If that be so, the inadvisability of opening our doors at the present time is too obvious to need more than utterance of the statement itself.

The idea appears to be that a Board should be set up, apparently as the sole judge of the qualifications of a candidate for admission. The question may be properly asked whether the Institute is to be satisfied with the decisions of this Board, or is the general body to be allowed an opportunity of objecting to the admission of a candidate passed by the Board; and is the consideration of qualifications by the Board to be the sole "test and examination" for admission; and, if not, what further is intended?

One's mind would be perhaps relieved if the proposed Board would specify clearly the general headings of the qualifications, without which the Board would not be able to pass a candidate for admission.—Yours, &c.

WM. WOODWARD, F.R.I.B.A., F.S.I.

15 Great James Street,
Bedford Row, W.C. 1.

"Mr. Malcolm Stark Again."

To the Editor of THE ARCHITECT.

SIR,—Your reference to the "audacity of a person named Stark" has aroused my interest, because it seems to me that you are referring to an interview of mine in the "Westminster Gazette," although the writer of your article is apparently unable to read my name.

Discussing the principle of private ownership allied with Guild control, you say that it is an axiom that ownership should always carry with it the power of control. But this cannot be taken as axiomatic, although it is largely the present custom. I think everybody will agree that the function of industry is to provide the community with the things it needs; in other words, industry is really a great organised public service. If that is admitted, then it follows inevitably that industry organised for service must mean industry organised to *give* service, and not to *get* it. If this conception is also admitted, it follows that the organi-

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sation must be controlled by the people who serve, and not by the people who are being served, and from this we are forced to the conclusion that the government of industry by the owners of its property merely because they are owners is incompatible with the conception of industry organised to give service. The Guild stands for the conception that in a proper organisation of industry management must become real leadership, and derive its authority from the whole personnel of the industry. It must not rest upon the choice of bodies of shareholders merely because they own the property. The true position of capital is that of the hired equipment of industry, the servant of the human team, not its master.

No one will deny the difficulties inherent in the realisation of such a conception, but at bottom I firmly believe it to be sound. At any rate, it is worth while trying, because the old system is breaking down before our eyes.—Yours, &c.,

MALCOLM SPARKES,
General Secretary.

The Guild of Builders (London), Ltd.,
52 Russell Square, W.C. 1.
January 20, 1922.

[We are sorry that owing to a printer's error we referred to Mr. Malcolm Stark instead of Mr. Malcolm Sparkes. —ED.]

The Lombard Street Church.

To the Editor of THE ARCHITECT.

SIR,—In response to your invitation, when I picked up THE ARCHITECT and, as we all do, looked first at the plates, I thought what an interesting church, and what a splendid idea it would be if THE ARCHITECT brought out all the plates in Clayton's "Churches of Wren." A reprint of this book would be very acceptable. A very great mistake has been made in former sacrifices of Wren's churches. I remember going to draw at St. Olave, which was destroyed when I was a pupil, and I thought it wholly unjustifiable. Very many believe that money raised in this way will never do any good.—Yours, &c.,

ARTHUR T. BOLTON, F.S.A.,
Curator.

Sir John Soane's Museum,
13 Lincoln's Inn Fields, W.C.
January 21, 1922.

[If the republication of the plates of Bell and Clayton's book is desired by our readers it is very easy to meet their wishes.—ED.]

A Defence of the Forth Bridge.

To the Editor of THE ARCHITECT.

SIR,—In an article in your issue of December 31 on "Bridges" reference is made, among others, to the Forth Bridge. Criticism couched in very strong terms is meted out to this structure by describing it as hideous, even to the extent of calling it a nightmare. This comment would appear to come from one with a prejudiced state of mind, whereas I suppose it is really fine from an architectural point of view.

The bridge as it appears to me is constructed on very symmetrical lines, and not full of irregularities, as one would suppose in reading Mr. Harper's article. It might be as well to point out that when bridges are designed appearance, although not the most important feature, is taken into account as well as strength.

The opinion from a technical point of view has usually been expressed in terms very favourably towards this bridge. Public opinion, which perhaps in this case is most important, records all in its favour. In conclusion, one can only say, whether as an artist, engineer, or member of the public, that this bridge, as viewed from all points of vantage, appears to the eye a wonderful structure.—Yours, etc.,

SCOT.

Re South African Grain Elevators.

To the Editor of THE ARCHITECT.

SIR,—In connection with this very extensive contract there has been quite a lot of correspondence, more particularly in the South African papers, as regards the amount of work that would be placed in the hands of British contractors.

It will, therefore, we feel sure, interest you to know that, in the face of world-wide competition, we have secured the contract for the asphalte work.

This, on account of the very many difficulties which occur on the site as regards pressure of water, &c., is a most important factor to the success of the enterprise, and when the whole scheme is completed it will mean one of the largest contracts that has ever been placed for asphalte, amounting as it does to many thousands of pounds.

The general details of the contract are perhaps unnecessary to enter into.—Yours, &c.

THOMAS FALDO & Co., LTD.

Windsor House, Kingsway.

Moore's "Life of Daniel Burnham."

To the Editor of THE ARCHITECT.

SIR,—As a copy of Moore's "Life of Daniel Burnham," published by Messrs. Houghton Mifflin, has already been mailed to you from America, we think it may be of interest to your readers to know that we are the English publishers of this book, and copies may be seen at our establishment, and we shall be pleased to supply any orders that are sent to us, or to post an illustrated prospectus to any person who is interested.

The same remarks apply to Magonigle's "Architectural Rendering in Wash," published by Messrs. Chas. Scribners' Sons, of which advance review copies have also reached papers on this side from America,—Yours, etc.,

B. T. BATSFORD, LTD.

94 High Holborn, W.C. 1.
January 24, 1922.

The "Architect" Fifty Years Ago.

JANUARY 27, 1872.

ACCIDENT AT THE HOUSES OF PARLIAMENT.

On Wednesday morning, during the height of the gale, the pinnacle at the west angle of the central tower of the Houses of Parliament fell in with a loud crash, carrying with it seven strong iron girders. It first struck the upper roof, a portion of which it demolished, and then fell on to the area surrounding the dome over the central hall, the principal portion of the *débris* fortunately remaining there, and not penetrating through the ceiling, all injury to the frescoes and the surrounding ornamental work was avoided. A portion of the pinnacle, however, bounded over the parapet at the lower part of the tower, and fell into the gutter beneath, striking, in its downward course, the coping of the smoke tower, about two hundredweight of which it broke off, and this mass of stonework fell through the roof and ceiling of the telegraph office. The pinnacle thus destroyed was upwards of fifteen feet in length. On Thursday workmen were engaged in clearing away the broken fragments, and immediately a new pinnacle will replace the one destroyed.

At the annual meeting of the Yorkshire and North of England Land Agents and Surveyors' Association (founded in 1867), held in Leeds, Alderman William C. Fenton, J.P., F.R.I.B.A., of Sheffield, was elected President for the current year. Alderman Fenton in 1907-9 was president of the Sheffield and South Yorkshire Society of Architects and Surveyors.

Having slipped from the scaffolding beneath the dome of St. Paul's Cathedral, a stone-mason, aged seventy, was killed instantaneously on Saturday. He was George Edward Ellis, of Stockwell, and he had been engaged upon work in connection with the restoration of the south side of the dome. At the evening service at St. Paul's the prayers of the congregation were asked for "Edward Ellis, who lost his life in the service of this Cathedral."

During 1921, according to the "Labour Gazette," about 86,000,000 working days were lost through disputes. The total number of workpeople involved in these conflicts was about 1,800,000. In 1920 approximately 2,000,000 workpeople were involved in disputes, having an aggregate duration of approximately 27,000,000 working days. The changes in rates of wages reported during 1921, in those industries for which statistics are regularly compiled by the Department, resulted in a net reduction of about £6,000,000 in the weekly full-time wages of over 7,000,000 workpeople. In 1920 a net advance of about £4,800,000 in the weekly wages of 7,700,000 workpeople was reported." In December there was a total reduction of over £400,000, affecting nearly 3,600,000 workpeople.

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Modern Methods in Building Construction.—III.

By Albert Lakeman, M.S.A., M.C.I.

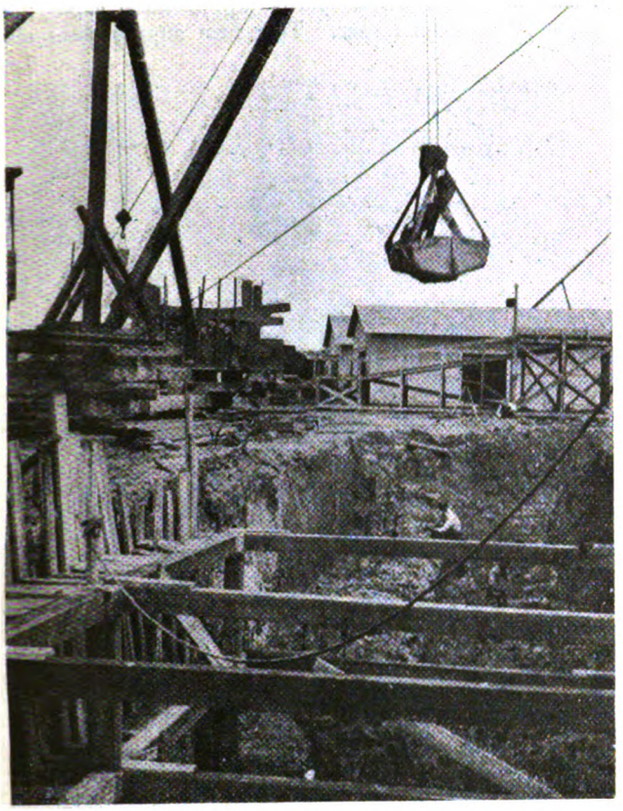


FIG. 11.—GRAB BUCKET IN USE.

Grab Buckets.—There are frequently sections of the work where it is either impossible or impracticable to use a steam shovel or trench excavator, and in such instances the excavation can often be executed by the use of grab buckets. This method requires a comparatively small initial outlay, while an excellent output can be obtained, and at least one reliable grab should form part of every contractor's standard equipment. These grabs can be operated by a special crane supplied as part of the equipment, by attachment to an ordinary crane or with an ordinary timber-built derrick. In using these grabs the operations are simple, and the excavated material can be loaded directly into wagons or trucks for removal if so required. Various sizes can be obtained from the leading makers, and various types to suit the different soils and conditions that may be met with. An illustration of a grab bucket in use is given in fig. 11, which shows a large pit being excavated by the aid of this piece of equipment. A travelling timber-built derrick was here used for raising and lowering the bucket, and when a full bite had been obtained the soil was swung round to be discharged over an inclined metal-lined chute, at the lower end of which the wagons were drawn up ready for loading. In operating the grab a signaller or watcher is employed, who directs the operator from the side of the excavation.

The grab is opened and lowered to within a short distance of the soil to be excavated. Upon a signal being given by the watcher, the operator releases the cable and allows the bucket to drop with all its weight on to the soil, causing the teeth to penetrate. The pull is then exerted to force the bucket to close, and as the teeth are drawn together through the soil they cause the latter to rise up and fill the bucket if a good bite is obtained. The grab is then raised and swung around, and the contents are discharged by opening the bucket, and the next cycle can then be commenced. From twenty to thirty cycles per hour can be performed under ordinary conditions, and if the capacity of the grab when flush filled is 1 yard cube a considerable amount of soil can be excavated in an ordinary working day. This equipment can be worked by a good operator and one labourer without difficulty, and the derrick or crane used for the excavation can be employed in lifting or placing materials for the trades that follow by removing the grab and substituting a crane hook.

In connection with the selection of the type of grab to be used, it must be understood that in grabbing loose materials and soft mud a low purchase is used, which means that the grab is closed by withdrawing a comparatively short length of chain, but when the material to be grabbed is hard and compact, or for excavation work of a hard nature, the grab must be of robust construction, with a high purchase, so that it can bite its way through and fill the grab bucket, and this necessitates the withdrawing of a correspondingly longer length of chain to close the grab.

In dealing with the different types of grab it will be advisable to put forward the claims of the various makers and illustrate the recommended articles for each particular class of work.

Figs. 12 and 13 show a grab manufactured by Messrs. Stothert & Pitt, Ltd., of Bath, and recommended by them for use in soft ground, such as sand, gravel, ballast, moist clay, &c. It is fitted with "Bacon's" operating gear, which is of simple and robust construction and enables the grab to be released under water should it grip some wreckage or obstacle which the power of the crane and grab cannot overcome. The bucket is constructed of mild-steel plates and angles securely riveted together, and it is claimed that there is very little frictional wear on the few parts of the operating gear, and consequently the cost of upkeep and renewals is reduced to a minimum.

The illustration in fig. 14 shows a grab attached to a crane when the dumping of the contents is operated

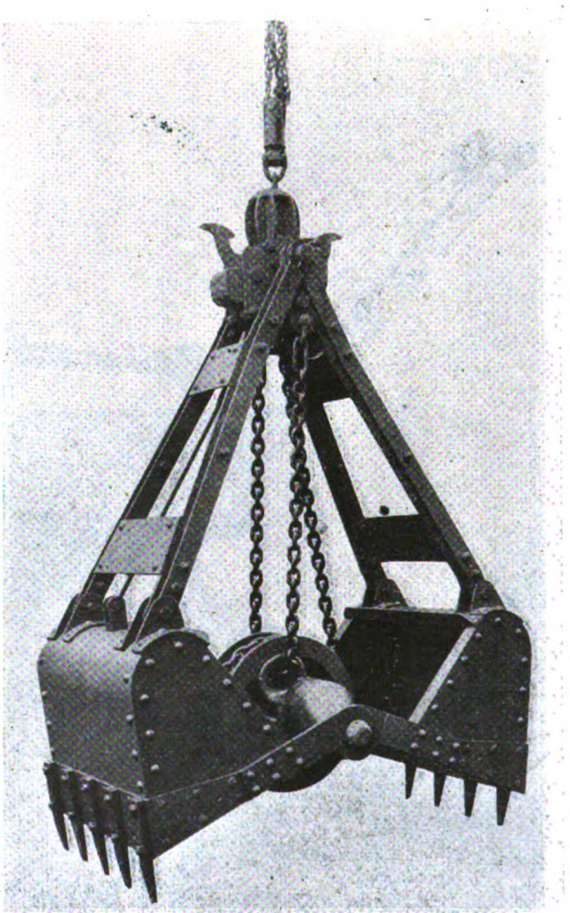


FIG. 12.—GRAB FOR SOFT SOIL—OPEN.

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by a suspended ring hanging at a predetermined height from the jib.

Messrs. Stothert & Pitt, Ltd., claim that the grab shown in figs. 15 and 16 is an entirely new one—"Bacon's" patent—of high purchase and digging power. In fig. 16

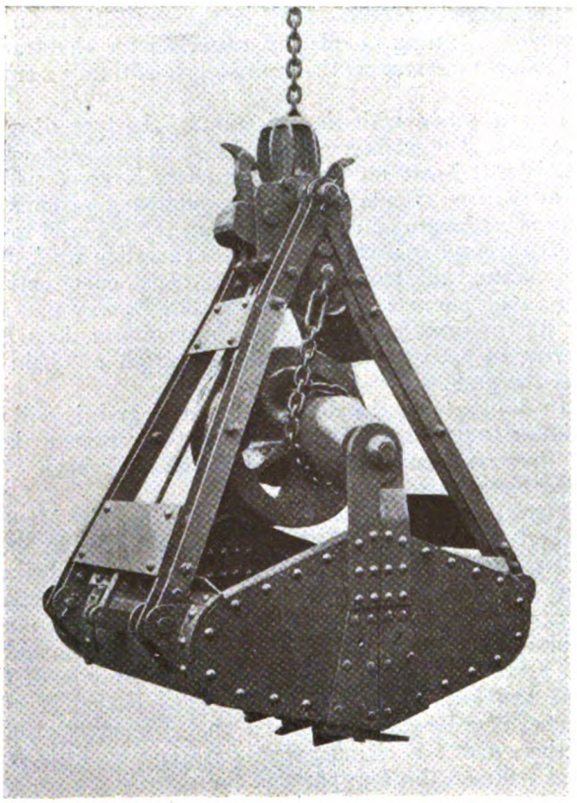


FIG. 13.—GRAB FOR SOFT SOIL—CLOSED.

it is shown digging into fairly hard ground, and it will be noticed that the purchase barrel or gear is carried high up above the material, thus allowing the full weight of the grab to be borne on the cutting edges or teeth of the bucket, which greatly adds to the power and efficiency. This type is recommended for excavation and contractors' work generally, and it is made in sizes from one-third cubic yards up to three cubic yards capacity or even larger. This firm supply plain steel-

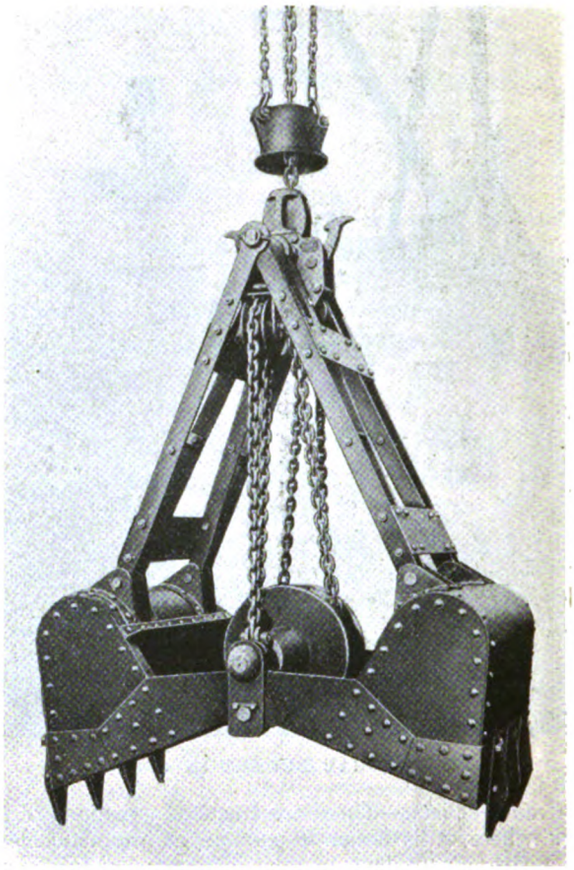


FIG. 15.—GRAB FOR FIRM GROUND.

plate buckets, with or without teeth, of the half- or whole-tine type, and for log lifting or for any purpose to which a grab can be applied. They are made to operate on a single-part chain or on two, three, or four rope suspension, the latter being capable of discharge at



FIG. 14.—GRAB ATTACHED TO CRANE.

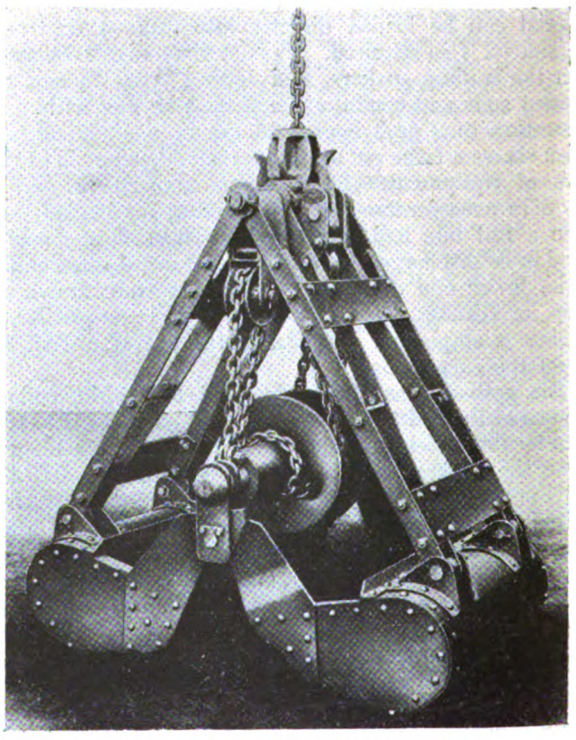
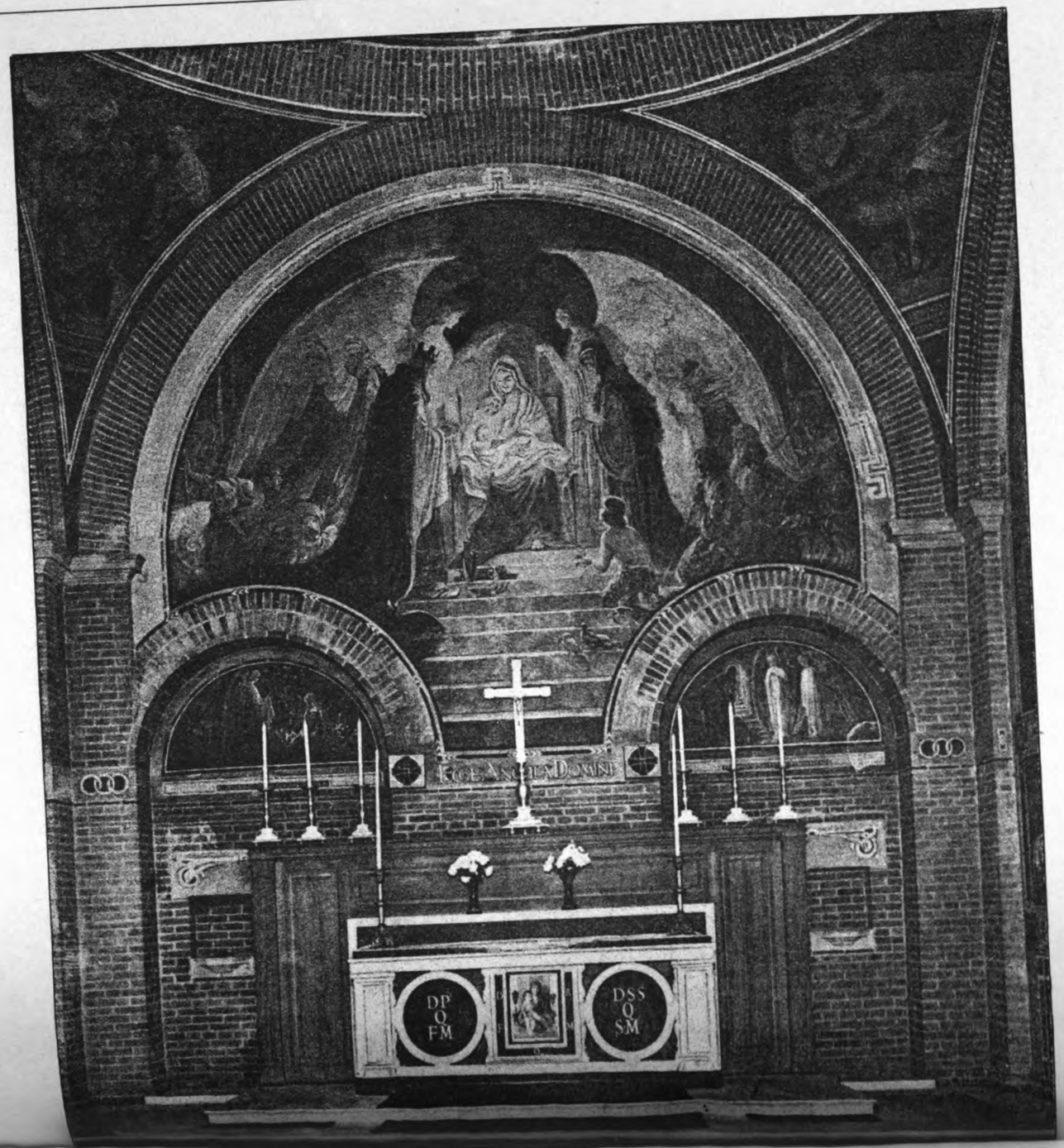


FIG. 16.—GRAB FOR FIRM GROUND.

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FRESCOES IN LADY CHAPEL, ST. JUDE'S, HAMPSTEAD GARDEN SUBURB.

By WALTER P. STARMER.

SIR EDWIN L. LUTYENS, R.A., Architect.

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AN ITALIAN CEILING DESIGN FROM AN 18TH CENTURY DRAWING

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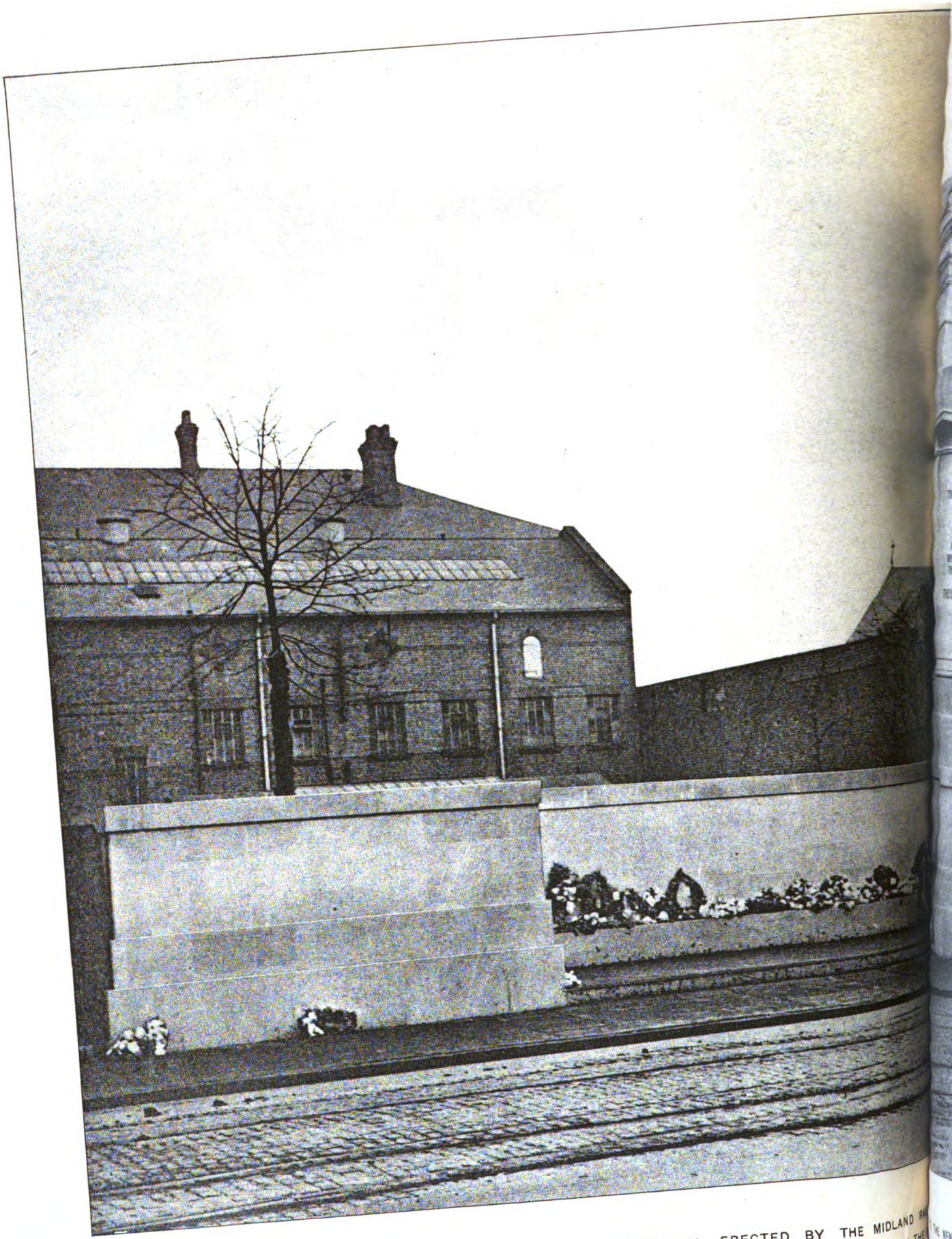
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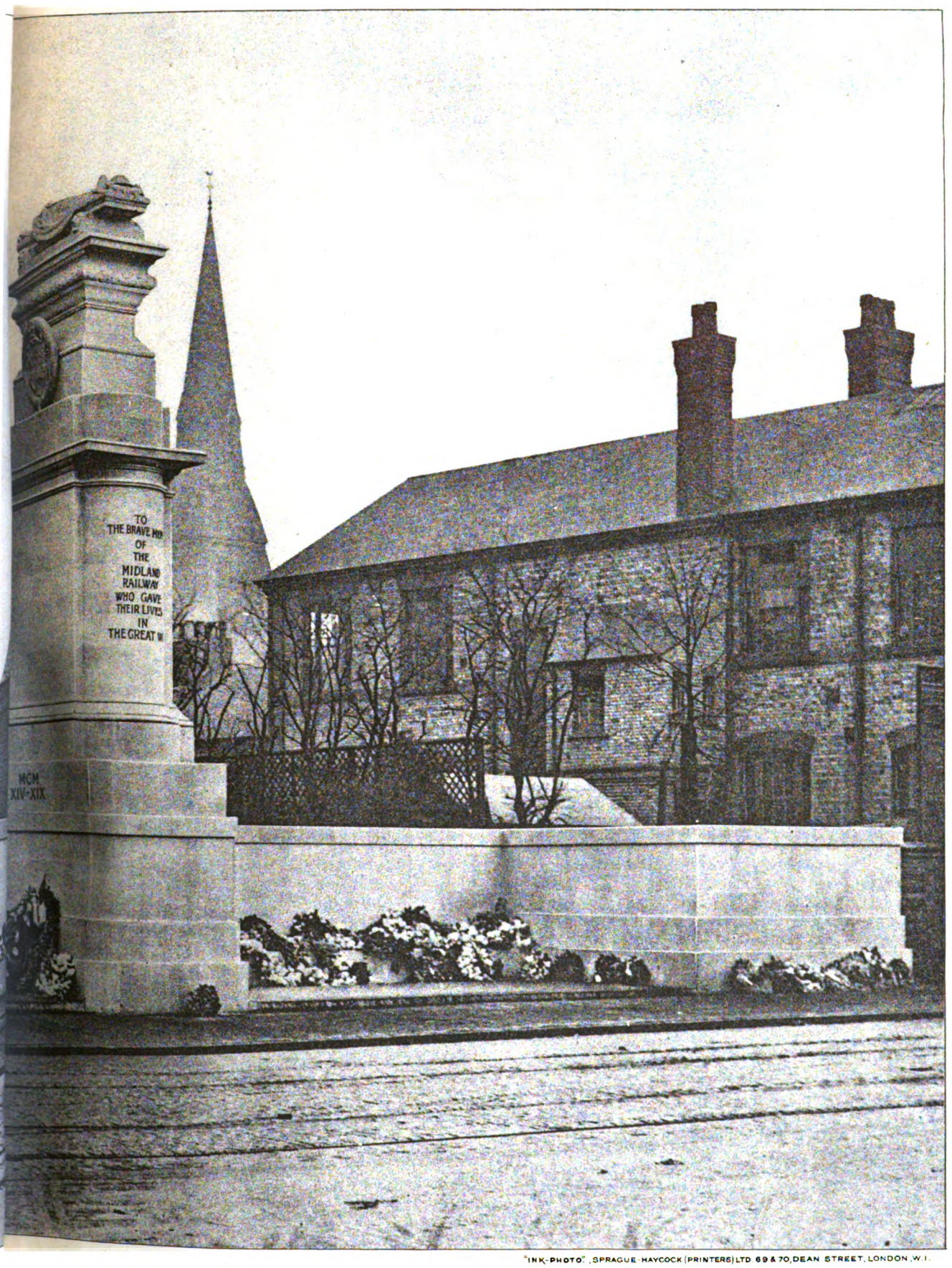
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MEMORIAL ERECTED BY THE MIDLAND RA
SERVANTS WHO GAVE THEIR LIVES IN THE
SIR EDW

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IPANY TO THE MEMORY OF 2833 OF THEIR
R. 1914-1919. DEDICATED DECEMBER 15TH, 1921.
R.A., ARCHITECT.

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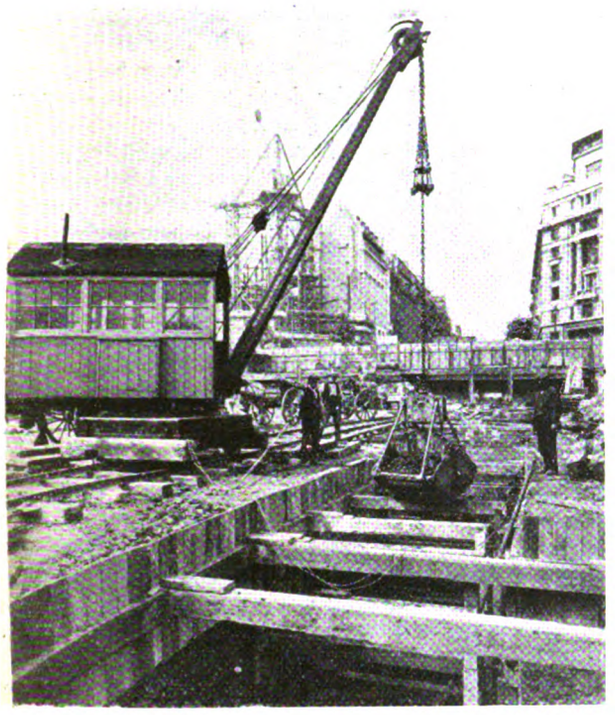


Fig. 17.—GRAB DIGGING FOUNDATION IN LONDON.

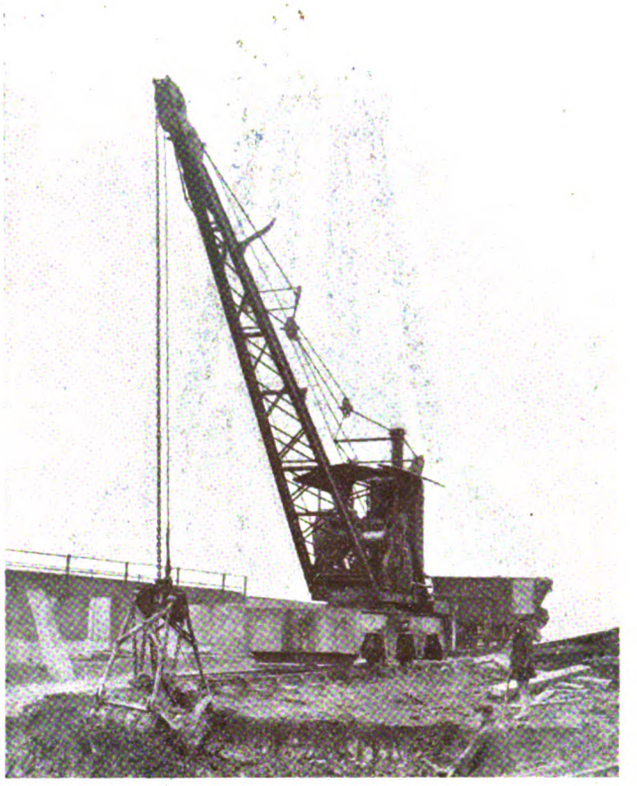


Fig. 19.—LEVELLING FACTORY SITE.

any height, whereas the single-suspension type, apart from dumping or release under water, is discharged from a suspender hanging at a fixed height.

With regard to standard sizes the smallest is No. 2, which has a flush capacity of 9 cubic feet, and the weight of the grab is 15 cwt. The crane capacity recommended for this size is 30 cwt.

From this small size there is a good range up to No. 10, which has a flush capacity of 80 cubic feet, and a weight of 63 cwt. A crane-power of 8 tons is recommended for this large size, and in the case of dredging and lifting wet materials suction has to be provided for and about 25 per cent. should be added to the crane-power.

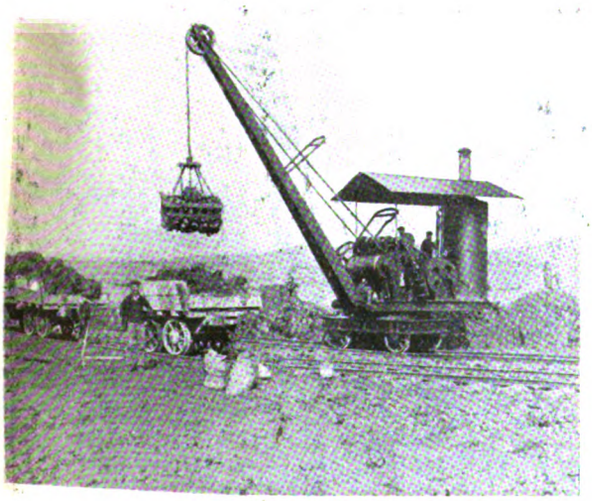


Fig. 18.—WHOLE-TINE GRAB.

An excellent illustration of a grab at work in the heart of London digging for foundations is that in fig. 17, which shows a "Priestman" grab attached to an ordinary crane. It will be noted that the grab is being successfully operated between the timbering that had to be put in to support the sides of the excavation. Messrs. Priestman Bros., Ltd., of Hull, manufacture excavation plant of two types—viz., (a) complete steam-grab excavators, and (b) single- and double-chain grabs for operation by existing cranes. Some of the claims put forward by this firm are that the steam-grab excavators are specially designed for continuous work at high speed, and are built to withstand long, rough usage, while the outputs range from 30 cubic yards of loose earth and 15 cubic yards of clay per hour with a "3A" size, to 120 cubic yards of loose earth and 60 cubic yards of clay per hour with a "10D" size. It is stated also that these steam grabs have advantages over other types of excavating machinery, as they will excavate many feet below rail level, and are therefore particularly useful for the excavation of trenches of practically any width or depth, for foundations, &c., and although specially designed for grab operation are equal

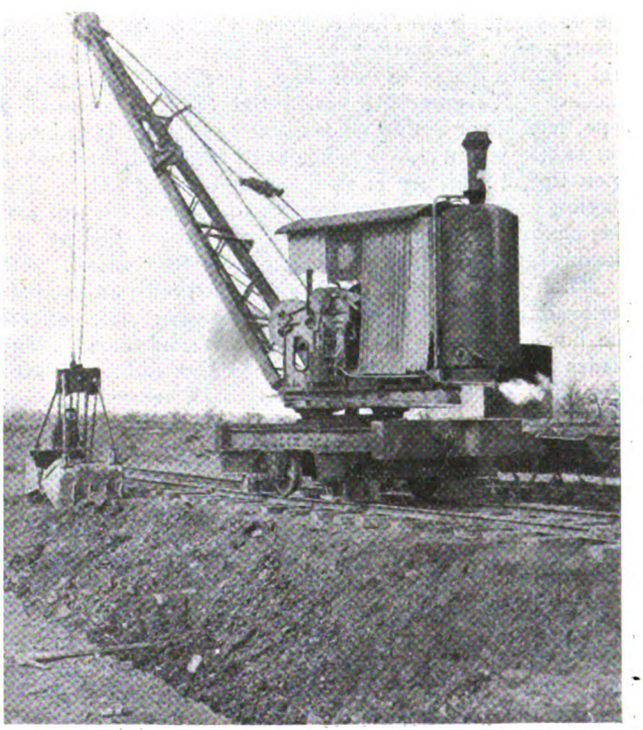


Fig. 20.—EXCAVATING FOR WAGON FACTORY FOUNDATIONS.

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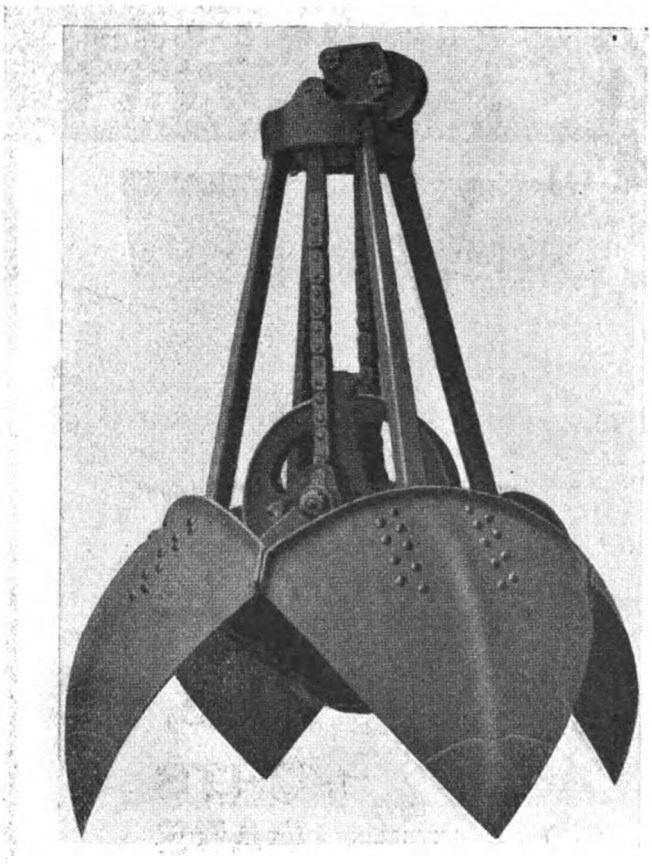


FIG. 21.—HAYWARD STANDARD ORANGE-PEEL BUCKET.

to the best ordinary cranes for general lifting work. As an example of the work that can be performed with this type of equipment, one large firm of contractors states that nine Priestman grabs of one and a-quarter cubic yards average capacity excavated and loaded 3,600 cubic yards of clay regularly in an ordinary working day. An illustration of a whole-tine grab as distinct from the plate type is given in fig. 18, which shows a steam-grab excavator engaged in digging and lifting heavy clay. The illustration in fig. 19 shows a Priestman whole-tine grab levelling the site for factory foundations, while fig. 20 illustrates the use of the Priestman plate-type grab for digging the foundations for a large wagon works.

A distinctive type of grab bucket is that made by the Hayward Co. of New York, whose agents in this country are Lidgerwood, Ltd., Friar's House, London, and known as the standard Hayward orange-peel bucket. This bucket, unlike the ordinary clam-shell type, has four opening blades, each of which is pointed, the shape when closed being semi-spherical, and when open the appearance is as illustrated in fig. 21. The digging or closing power consists of a power-wheel and side-chain device acting as a lever and controlled by the closing line which passes around the power-wheel.

The upper centre casting is provided with an oscillating head, carrying a manganese-steel sheave, which allows the bucket to hang central under all conditions. The blades are corrugated in the back to give additional stiffness, and are fitted at the points with removable steel shoes. These standard buckets are made in sizes from 2 cubic feet capacity upward, and they are used in practically all classes of excavating work. In addition to this standard type, the same firm supply dwarf orange-peel buckets, multi-power buckets, clam-shell buckets, and automatic buckets, and thus a good range is provided to deal with any particular problem.

The dwarf orange-peel bucket is an interesting piece of equipment, as the smallest size has a capacity of 100 cubic inches only, and it can be operated inside a 12-inch pipe. This bucket obviously does not require to be operated by a crane, but is worked by hand, and it is extremely useful for excavating and digging under conditions where space is limited for working. The makers recommend its use for sinking cylinders and pipes from 12 inches in diameter up, in digging wells or cleaning old wells, in cleaning sewer catch basins, digging test pits, digging mould pits in foundries, and other similar cases; and there is no doubt that it can be successfully applied where it would be impossible to use a large bucket.

It is claimed that the depth to which they will dig is only limited by the length of the operating lines, and that they will excavate almost any material, as in hard soils a weight, known as the "hammer attachment," is fixed over the bucket to give it more penetrating power. The makers state that over 100 of these buckets have been used on the subway extension in New York alone. A small derrick, especially built for use with these buckets, as shown in fig. 22, is also supplied if required, this being known as the "Midget." It is made in three sections—the boom, the mast, and the base—and each section can be carried by two men. It is claimed that the entire machine may be unloaded, set up, and ready for work in less than twenty minutes. Owing to the comparatively small outlay required for this small outfit, it should be possible for many contractors to adopt it even on work of a minor character, and it will show considerable saving over ordinary hand labour. The multi-power bucket follows the same general lines as the standard type, but the closing mechanism is different, as it is arranged by using a two-part side chain, which is claimed to give 60 per cent. more penetrating power.

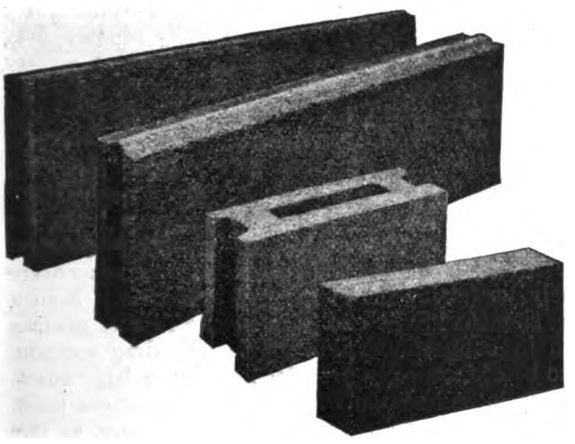
This may prove a very important factor in some classes of excavation where difficult soils are met with. The automatic bucket is a special piece of equipment designed for use with any crane or derrick without making any changes in the lifting appliance. A crane can be used for ordinary lifting purposes, and when required for grabbing the bucket is attached to the hook and the electric cable is plugged into a connection. As the bucket is fitted with its own motor-operated winding mechanism, which opens and closes the bottom, it is a complete electrically operated unit, and the crane-power is only used for the raising and lowering of the unit. An important feature of this automatic bucket is the introduction into the transmission of a multiple disc clutch, which will slip and permit the motor to continue to run in case the edges of the bucket come together or are

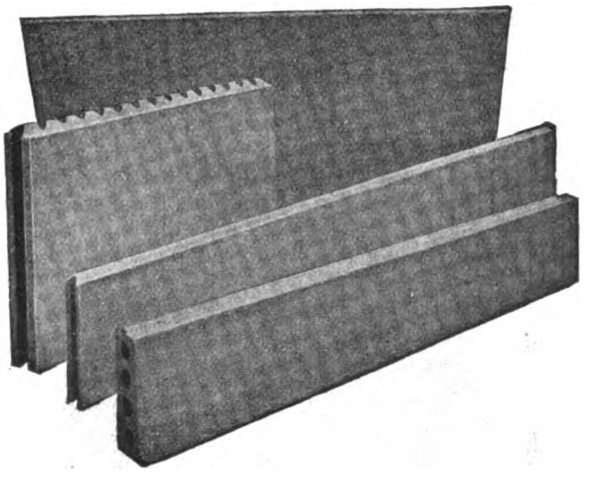


FIG. 22.—"MIDGET" DERRICK.

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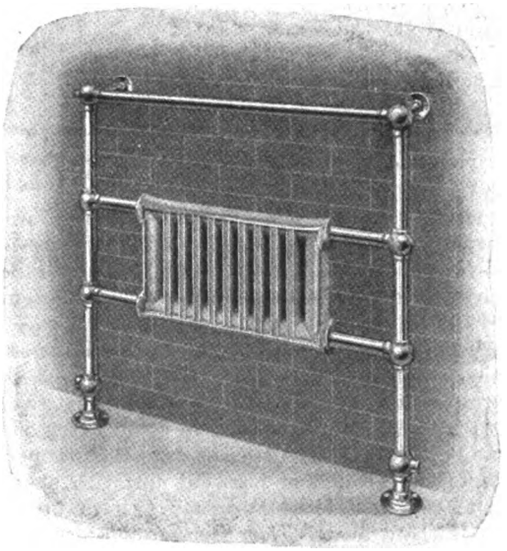
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held apart by some obstruction while the controller is in the closing position.

Three-sided orange-peel buckets can also be obtained and special types for various purposes of different kinds, but the general types given will be those of most interest to the general contractor for excavation work.

Scrapers.—The use of scrapers in shallow excavation and grading work will give very economical results, and it is rather remarkable that this method has not been more fully developed. The writer has not come across more than one example of their use in this country, and in this particular case the scheme was in the hands of a contractor who had had some experience in America, and he insisted upon their adoption, thereby reducing his costs considerably. No particulars of makers in this country are, however, available, and this implies that the advantages of the method have not been realised and



FIG. 23.—DRAG SCRAPER IN USE.

no demand is therefore met with. Scrapers are, however, widely used in America, and they are of two types—viz., "drag scrapers" and "wheel scrapers"—and particulars of cost taken where they were employed showed in every instance a saving over the cost of ordinary hand labour, while in addition a large saving in time also resulted. The illustration in fig. 23 shows a drag scraper in use, and it will be noticed that two horses and two men are employed, but in some cases one horse and one man are sufficient to operate the scraper. The surface of the ground is first cut up with an ordinary plough to render it loose and easy to pick up, and the scraper is then drawn over the ground to effect the removal. The drag scraper is a large scoop with a semi-rounded bottom surface, two projecting handles at the back, and an eyelet on either side for the attachment of the chains forming part of the harness. In operating the scraper the horses are set in motion, and the operator, who is a labourer, slightly lifts the handles to depress the front edge of the scoop portion which bites into the ground, and the forward motion being continued, the soil rises into the scraper and fills it. When a full load is obtained, the operator presses down on the handles and causes the front edge to rise, which brings the scraper to the surface again. The soil is then dragged away by the horses, the scraper travelling over the surface on its smooth and shaped bottom, until the tip is reached. The discharge is effected by the simple operation of suddenly lifting up the handles at the back, which causes the scraper to overturn and empty the soil. In removing a large quantity of earth it is usual to have several scrapers and one plough, and these continually pass over the surface to be excavated and quickly work their way down to the desired depth, especially if a complete circuit can be arranged to permit a sequence of operations in one direction without any waiting for one scraper to pass another. The capacity of each drag scraper is about one-sixth of a yard cube, and a very large quantity of soil can be dealt with in one day, as there is no rehandling and no mechanism to get out of order.

The operation with the wheel scraper is very similar, but as it has a much greater capacity the scraper is mounted on two wheels, and the depression into the soil and the overturning are accomplished by means of a lever fitted to the equipment. These scrapers are extremely useful for the removal of surface soil from a building site, the levelling of ground, and for any grading required in connection with roads. The drag scrapers can also be economically used for levelling a large quantity of any loose material which is piled up at one point and which has to be spread over a large area as the scrapers are driven over the mound, filled near the summit, and taken away to any point to discharge the soil where required. This system is recommended to contractors generally as one worthy of adoption in many schemes.

(To be continued.)

National Wages and Conditions Council.

The National Wages and Conditions Council for the building industry met at the Central Y.M.C.A., Tottenham Court Road, W., on January 13 and 14 for the purpose of fixing wages for the period from February 1 to July 31. Mr. Stephen Easton, of Newcastle-on-Tyne, presided. A statement issued after the first day's private meeting says:—

"The Council considered what, if any, variation of wages should be made in accordance with the sliding scale agreement which provides that the rates of wages shall be varied half-yearly by one halfpenny per hour in respect of each complete average variation of not less than 6½ points. The figures in respect of the cost of living show the average percentage increase for the period July to December 1921 to be 112.16, or 57.83 below the figure (170) to which the rates set out in the original agreement are assumed to correspond, and consequently the rates of wages for the ensuing six months should be 4d. an hour below the rates ruling in April 1921. On account of this difference 3½d. an hour has been deducted by previous adjustments.

"The Council resolved that on and after February 1 next the rates of wages payable to craftsmen and labourers engaged in the building industry shall be reduced by one halfpenny per hour, provided always that the rate paid to labourers shall not be less than 75 per cent. of the craftsmen's rate. It was further resolved that a review of wages take place at the annual meeting to be held in March, at a date which will render the "Labour Gazette" figures for that month available, and in view of the failure of agreement at the December meeting on the hours' question, that question to be considered at the same meeting, subject to the consent of the employer bodies concerned."

The Council spent the whole of the second day discussing the question of the re-grading of towns, which affects the rates of pay. Several hours were occupied in hearing evidence, and the proceedings were adjourned, it being decided that a meeting of the Council be called for the purpose of announcing the decisions.

The question of an extension of the 44-hour week has been deferred till the March meeting of the Wages and Conditions Council. The Operatives' Federation has called a national conference for January 20 to consider its policy when the issue is raised by the employers.

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AUSTRALIA HOUSE.
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Architects.

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Birmingham Architectural Association.

Mr. Paul Waterhouse, P.R.I.B.A., was a guest at a dinner held by the Birmingham Architectural Association on Friday, January 13. The guests included the Lord Mayor of Birmingham, Alderman David Davis, and the Presidents of several of the Architectural Societies of the country.

After the dinner Mr. Waterhouse delivered an address, in which he commenced with a very hearty acknowledgment of the reception which had been offered to him. He was anxious, he said, to express the warmest appreciation, not only of the personal friendship shown in the invitation to be present, a friendship which on his side was as sincere as that shown by his hosts, but also of the token which this invitation and reception showed of the very admirable bonds of unity which connected the R.I.B.A. with its allied Societies. Perhaps there never was a time in the history of professional organisation in which the uniting links were so strong and so free from anything but brotherly and mutual harmony.

Were any special evidence to be sought of the strength of this spirit of co-operation it could be found undoubtedly in the way in which the non-Metropolitan Societies had worked together with the central body in elaborating and encouraging the scheme of unification now before them. After a few words dealing with this particular topic, the President of the Institute spoke of the nature of the considerations which make association under a Metropolitan centre so necessary, and explained how little such a centralisation was derogatory to those who, while not living at the Metropolitan base, were for all that as important—being outposts of the republic—as the administrative headquarters.

He urged the necessity for vitality in the non-Metropolitan groups, pointed out how essential such vitality was to the mother Society, and urged them never to be afraid of coming forward with suggestions, schemes, or offers of collaboration.

Passing to the topic of education, he insisted on the great value of the present education schemes, not only to the young men who were the immediate beneficiaries of the schooling, but also to the architectural community at large, affecting as it did the welfare of futurity and the posterity of the architectural traditions. He went further, and pointed out that the very interest taken by established practising architects in this provision for the younger generation was in itself a fascinating link of union among the architects of the day.

Few professional bodies were ahead of architects in this enthusiastic promotion, sometimes at great personal sacrifice, of the well-being of those young men who were to be their successors and supplanters.

After dealing briefly with the alarm felt by some pessimists as to the possible overcrowding of the profession, Mr. Waterhouse concluded his speech by a serious word or two on the motto of the Institute and the great aims which the profession had before it.

The meeting concluded with a hearty vote of thanks to the President of the Institute, proposed by Mr. H. T. Buckland, F.R.I.B.A.

Last week two proposals of a novel character were made at a sub-committee meeting of Glasgow Corporation Housing Committee. Arising from a memorandum prepared by the Town Clerk on the operation of the Small Dwellings Acquisition Act it was remitted to the officials to frame a scheme whereby houses might be erected on ground belonging to the Corporation, and sold to private individuals, part of the price being advanced by the Corporation and secured by bonds which would be paid off by annuity instalments of principal and interest over a number of years. The other proposal remitted was that the Director of Housing prepare a scheme for the demolition of the houses in one of the slum areas of the city, that while their dwellings were being demolished the tenants be accommodated in houses erected as near as possible to that area, and that suitable houses be erected on the site of their former dwellings, to which the original tenants would have the right to return.

Supply of Bricks through the D.B.M.S.

1. The following arrangements have been made after negotiations between the Ministry of Health and the Federations or Associations of Brickmakers:—

(*a*) *Contracts to be cancelled.*—As from January 31, 1922, all contracts made by the Department of Building Materials Supply for the supply of bricks for Housing Schemes will be cancelled.

(*b*) *Existing Delivery Orders.*—All orders placed by the Department for the delivery of bricks to particular schemes will remain operative until January 31, and will then be cancelled so far as they have not been executed by the despatch of bricks from the works on or before that date.

2. *Future Arrangements.*—After January 31 Local Authorities or their building contractors will be free to make their own arrangements for the supply of bricks. It is hoped that this procedure, under the conditions now prevailing, will facilitate a reduction in the price of bricks for housing.

Under the form of contract in use by Local Authorities, any reduction due to a fall in the price of bricks below the D.B.M.S. schedule price will be treated as a variation in the cost of materials, and the contract price of the houses will be varied accordingly.

Care should be taken by Local Authorities to secure that the maximum reduction on schedule prices is obtained; and in dealing with the final cost in the Assisted Housing Account the Department will require to be satisfied that payments have not been made in excess of ruling market prices.

General.

A deputation of Clayton residents has asked the Manchester Parks Committee that Clayton Old Hall shall be used as a library and rest-room for the district. The hall, which came into the possession of the Corporation some years ago, is an Elizabethan house, half-timbered and surrounded by a moat. It was Humphrey Chetham's country residence.

Wailes Dove Bitumastic, Limited, of Newcastle-on-Tyne, at their recent annual meeting added two gentlemen to the board of directors, namely, Mr. Percy Hedley, engineer, St. James Court, London, and Mr. Thomas Macdonald, son of Mr. Charles Macdonald, who has been associated with the Company for many years past.

Messrs. Frank Matcham & Co. are the architects for the super-cinema, seating 3,000 persons, which the Stoll Picture Theatre (Liverpool), Ltd., propose to erect on a site of 2,300 square yards close to Lime Street and St. George's Hall, Liverpool. The expenditure for the building, fixtures, equipment, and architects' fees is estimated at £268,000. Above the cinema, which will have only one balcony, it is proposed to erect a roof-garden suitable for tea-rooms, dancing, and suppers, accessible by lifts and grand staircase.

It is not often that a combination of manufacturers is able to fulfil speedily the promises made at its inception. When Radiation, Ltd. (comprising the six largest British manufacturers of gas apparatus) was formed, it announced as its policy the production of the best and most efficient gas appliances at the lowest possible prices. Great progress has been made in the production of new and better gas grates, and now comes the welcome announcement of a substantial reduction in prices. This has been rendered possible by the elimination of unnecessary competitive expenditure and improved manufacturing facilities.

The following figures show the progress that has been made in the State-aided housing schemes in Scotland to December 31, 1921: permanent houses completed, 4,587; temporary houses, 625; reconstructed houses, 75; houses built under the private subsidy schemes, 1,222. In addition there are 13,900 houses under construction, of which 2,051 are being built with the aid of the Government subsidy to private persons. The total amount paid out by the Scottish Board of Health in respect of the 1,222 houses completed under the private subsidy schemes is £294,976 13s. 4d.

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Ernest Newton, R.A.

THE profession as a whole, and the very large number of personal friends to whom Ernest Newton was endeared, have been grieved by his unexpected death, for we all hoped he would be many years longer in our midst. Few men have passed through a busy and strenuous life without leaving behind them some work which might have been better done, work which, owing to haste or adverse circumstance, was commonplace or ineffective; and with most architects we try to recall the best achievements of a lifetime in estimating what they have done for their art. But of Ernest Newton it may be said that he never produced work which did not bear the clear evidence of careful thought and clear-cut conviction, and what he has left behind him will in time to come take its position as the outcome of a great tradition.

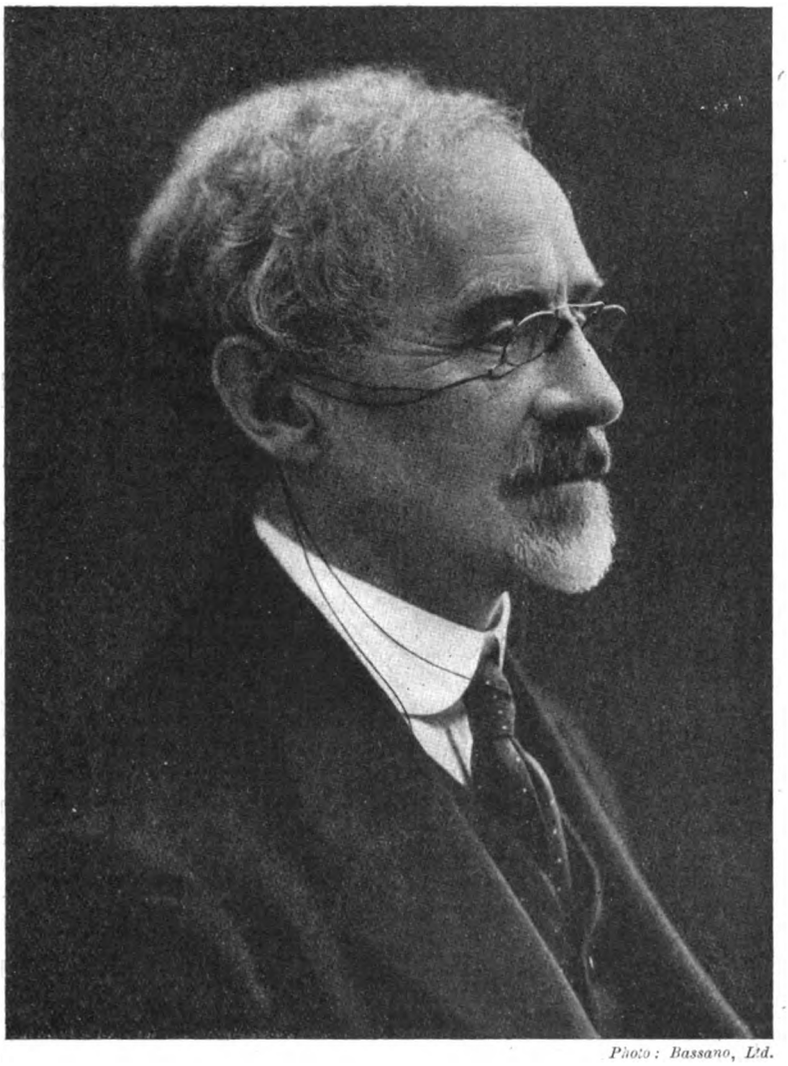


Photo: Bassano, Ltd.

THE LATE ERNEST NEWTON, R.A.

Newton and Field may both be regarded as "Shaw men"; but Newton, unlike Field, was articled to Shaw, and the six years he spent in his office were sufficient to give direction to a phase of design from which he never deviated. Other men may have seemed more brilliant for a moment, but we think it would be safe to predict that none have a more assured position in the Temple of Fame, in which reputations which are not temporary and evanescent are enshrined. Shaw's design may be described as essentially masculine in type, and latter-day critics have often referred to the coarseness of his work, a criticism which has always seemed to us unjust; but if he erred it was certainly in the direction of too broad and vigorous a touch. His work, compared with some of his contemporaries, was rather what the Pitti Palace is when compared with some of the more delicate work of the same period of the Renaissance. We feel of it that it is the work of a giant rejoicing in his strength, and disinclined to lose himself in small subtleties of design. Newton's work, on the other hand, may be described as possessing a certain feminine touch; and, while it was never weak or feeble, its restraint and delicacy were always marked. It was the Georgian of a designer who seemed to have studied the delicate Colonial Georgian architecture of New England; and, while it was as truly traditional and English in its type as anything Shaw did, it contained notes which were absent in Shaw's compositions.

Newton's principal works were a series of fine country houses, which have been fully illustrated in the contemporary papers, and included Bullers Wood, Chislehurst; Redcourt, Haslemere; Steep Hill, Jersey; Glebelands, Wokingham; Ardenrun Place, Blindley Heath; and a House of Retreat and Chapel for the Sisters of Bethany, at Hither Green. The last-mentioned group included a chapel of singularly beautiful and refined design. His more recent works have included several designs for houses abroad, which have been shown at recent R.A. exhibitions.

Like most of the men closely associated with Shaw, Newton during a great part of his career remained outside the Institute; but, in common with Sir Reginald Blomfield and others, he took a very active part in its activities after the "cave" was ended through the interposition of Sir Aston Webb. Newton was President of the R.I.B.A. from 1914 to 1917, in the very difficult period of the War; and there can be little doubt that his self-sacrifice in the interests of the profession during that very difficult period must have proved a very heavy strain on his vitality. He acted for the Government during the War in regulating sanctions given for permission to build, and all of us remember with gratitude the immense care he took to render control

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as easy as possible for all of us. His experience in this office made him a firm and convinced opponent of every form of governmental control and interference with freedom in the world of building. His services in connection with the relief of Belgian architects during the War were fittingly recognised by the bestowal of a Belgian Order, and he was made Officier de l'Ordre de Couronne Belgique and an Hon. Membre de la Société Centrale de l'Architecture Belgique; while among other foreign distinctions he was made Officier de l'Academie de France. His war services were recognised here by the bestowal of the C.B.E. in 1920, while he was in 1918 presented with the Royal Gold Medal of the R.I.B.A., in recognition of his work as an architect.

It is difficult to realise that one who has been so intimately connected with the fortunes of the profession in its most difficult times is no longer in our midst, and quite impossible to fully realise what we all have lost; but we hope that, as his sons will follow in his footsteps, we may be constantly reminded of one who was loyal and true to his fellows, and who laboured unceasingly in their interests and the cause of his calling.

Illustrations.

SOANE MEDALLION PRIZE DESIGN. By Alfred John Brown.

OWEN JONES STUDENTSHIP.

One of the Drawings submitted by the winner, W. J. Knight, A.R.I.B.A., showing the Choir, St. Vitale, Ravenna.

Notes and Comments.

Sir Charles' Exit.

Sir Charles has resigned the Presidency of the Society of Architects, speaking somewhat grandiloquently of his duty to the State. In common with one of the characters in "Midshipman Easy," he may think that "duty comes before decency." But we believe that one is compatible with the other, and that there is never a necessity or justification for distorting and misrepresenting facts. These appear to us to be as follows. If prices had not risen since 1914, it would still have been impossible to replace the speculative builders' work without loss to the State, unless the working classes were prepared to pay much heavier rents than those they have hitherto paid. But with the prices of all materials enormously enhanced, both by the high cost of wages of labour in their production, and secondly by the manipulation of rings—a factor as to which we have no exact data—and with very highly paid and inefficient labour, the situation became impossible. If the working man is encouraged to live on the taxpayer, he will not seek to cheapen production, a fact made abundantly evident to all of us. As for architects, we must remember that some of them claim that the way to promote cheapness is to keep down the height of walls by using gables and breaking up roof-levels. Others, again, have adhered to very simple roofs and higher walls. Admirable designs have been produced by the adoption of both methods, both by departmental and private architects, while others have not been so skilful. But the profession as a whole has done much good and creditable work, and we do not think it can be held that architects have contributed to the failure of the National Housing Scheme either in a "prime" or secondary manner. They have failed, if failure to achieve the impossible can be accounted a failure, but unless some genius appears to show us a solution we have entirely overlooked, we think the "prime" responsibility of the failure rests with the State and the State alone: for it must be remembered that if Labour has formed unreasonable views of what the State should do for it, those beliefs might have been dissipated by courage, firmness, and sincerity on the part of members of the Government.

Architects and Housing Schemes.

The letter which Sir Ernest George addressed to the "Morning Post" on the above subject is so excellent that we quote it below:—

"While letters in your columns have discussed the value or the costliness of an architect's help in planning workmen's dwellings, I think an important fact has been lost sight of. The trained architect trusts to giving character and style to the simple building by the study of proportion, the spacing and size of windows, and all parts, and the result should be homely and right. The designer who is not an artist fails in happy proportion and disposition of parts, and finds the need for ornamented windows, doorway, or other applied feature, which he hopes will supply the quality that his work has missed. The qualified architect has no need to decorate his simple structure."

This covers the whole subject and could not be improved on.

A Perfect House.

Under the above heading the Special Correspondent of the "Daily Telegraph" gives a long and glowing description of a house designed by Mrs. Clarice Davidson for her husband. The points of the house are as follows:—

1. It is only one room deep so that every room can be sun lighted during the whole of the day.
2. The drawing-room has a gas-fire in two halves, which swing round into hollows on each side disclosing an ordinary coal fire.
3. From the drawing-room you step out into the garage complete with fire extinguishers and cupboards; it has the *exceptional advantage* of a concrete floor!
4. On one side of the hall is a large dining-room with a table near the window and another table near a patent fireplace, and across the dining-room are two sliding doors leading to the kitchen.
5. In this holy of holies the triumph of the house and cupboards with doors that slide easily, drawers which never stick, and tables which fold up against the wall, more than this there is a stove with a hood over to carry off the fumes of gas and smoke.
6. This gas stove heats water for every room in the house, in which every bedroom has fixed basins.
7. When the tradesmen call you need not open the back door, you merely open a hatchway near the front gates.
8. The cupboards are wonderful, and many of them are lighted by electricity, while the front door bell is so arranged that inmates in the orchard at the back of the house receive notification of callers.
9. Every room has rounded corners and electric switches for working the vacuum cleaner or electric iron.

We suppose that Dr. Davidson paid the bill, but we are not informed what it amounted to; this would interest us almost more, together with a ground plan, than some of the "points" given above, which can be obtained by any of us who care to pay for them. We suggest that the Special Correspondent should now visit Dr. Davidson and discuss the question of cost with him: it should be noted that each room must have two outside walls.

Housing and Exemption from Taxation.

At a meeting of local authorities held in Glasgow the following recommendations were agreed to:—

Exemption from income tax to the private builder and the private investor on all houses with rents under

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£25 per annum, plus recent increase, built by them during the next five years. Mr. John Reid, Convener of the Housing Committee, and Mr. James Thomson, the City Engineer, represented Dundee.

Lord Provost Paxton, Glasgow, submitted the proposal, which, he said, had been put before him by a citizen who factored a large area of the City of Glasgow, and who had had extensive experience for over thirty years in the erection of working men's houses. In the considered opinion of this expert, the solution of the housing difficulty with regard to the rapid provision of houses might be found thus:—

1. Exempt the builder and the lender from income tax of 6s. per £1 on all houses built during the next five years, rentals of which would be under £25, plus increase of rents.

2. To make the exemption applicable to houses of two apartments (including bathrooms) built in tenements of not more than three storeys.

3. To continue that exemption for the next twenty-five years.

The conference, after discussing the expert's scheme, agreed that copies should be sent to all local authorities to give them an opportunity of discussing it in detail.

We consider the above proposals are both sound and harass us or for the theories of their departmental heads.

The Shortage of Plasterers.

In a letter to the "Manchester Guardian" the Deputy-Chairman of the Housing Committee calls attention to the effect of the shortage of plasterers in housing. He says:—

"Houses form the largest proportion of the buildings now in course of erection, and in these the wall surfaces requiring plastering are considerably greater in proportion to the number of bricks to be laid than in the average pre-war building to which the 1914 figures apply. More plasterers are, therefore, required in proportion to other trades than heretofore, whereas the returns now show that the proportion is lower by at least 20 per cent. on the trade."

He goes on to explain how this shortage has hampered progress:—

"The scheme was begun in July 1919, and there are now 2,020 men engaged on the scheme, of whom 195 are plasterers. Altogether 2,700 houses have been begun, of which 890 are finished. Of the remainder 1,137 are roofed in, 364 of which are awaiting plasterers, in some cases for six months. Attempts have been made, without success, to induce the local federation to vary the demarcations under which the different sections of the trowel trades work, so as to overcome the delay caused by the shortage of plasterers. An additional eighty plasterers could be kept in full employment for twelve months.

"Had the scheme foreshadowed by the decision of the National Wages and Conditions Council been in operation twelve months ago, and demarcation rules made to enable craftsmen other than plasterers capable of undertaking work now being claimed by plasterers to carry out such work, the output of houses during the current year would have been increased by 50 per cent. and an additional 3,600 residents in Manchester provided with houses."

It is most unfortunate that the adherence to strict trade-union rules on the part of one of the minor crafts should be allowed to damage the interests of all, and it seems a pity that in the interests of all other crafts the trades cannot agree among themselves to adopt temporary relaxation of regulations which are clearly in the general interest.

The Federation of British Industries.

The Federation of British Industries has been informed by the Chancellor of the Exchequer that he is prepared to meet their representatives on February 15. The deputation will urge the immediate necessity for a reduction in the burden of taxation which they suggest should be effected by a reduction in the rate of the income tax, the abolition of the Corporations Profit Tax, and the exemption from Super Tax of reserves properly employed in the business of private firms. There can be no doubt that this last point is very intimately connected with the problem of unemployment, the dole for which has reached such immense figures, and it would seem that a remission of taxation would bring about a saving in the unemployment dole—one of the worst and most mischievous of methods of expenditure.

But we are afraid that the Government does not yet realise that the country is determined that expenditure shall be cut down, and has no longer any tenderness for the continued existence of many of the overgrown and unwieldy departments which chiefly seem to exist to harass us or for the theories of their departmental heads.

Forthcoming Events.

Saturday, February 4.—Architectural Association. Visit to New County Hall, Westminster. Members meet outside main entrance at 2.30 p.m.

Monday, February 6.—Royal Institute of British Architects. Meeting at 9 Conduit Street, W. Annual Presidential Address to students and presentation of prizes and studentships. Criticism of the work of the students by Mr. Theodore Fyfe, F.R.I.B.A. 8.30 p.m.

—— Surveyors' Institution. Meeting at 12 Great George Street, Westminster. Adjourned discussion on the paper by Mr. W. R. Davidge, F.S.I., entitled "The Problems of Greater London." 8 p.m.

Tuesday, February 7.—Royal Institute of British Architects. Special General Meeting at 9 Conduit Street, W., called at the request of the R.I.B.A. Defence League. 5.30 p.m.

—— Institution of Heating and Ventilating Engineers. Annual General Meeting at the Holborn Restaurant, W.C. 2.30 p.m.

Wednesday, February 8.—Edinburgh Architectural Association. Meeting at the College of Art, Lauriston Place. Paper by Mr. J. W. Archer, H.M. Office of Works, entitled "Foundations." 7.30 p.m.

Friday, February 10.—Industrial Council for the Building Industry. Quarterly Meeting at Montagu House, Whitehall, S.W. 10.30 a.m.

—— London Society. Meeting at Royal Society of Arts, John Street, Adelphi. Paper by Sir Joseph Broodbank entitled "Progress in the Port of London." 4.30 p.m.

—— Town Planning Institute. Meeting at 92 Victoria Street, Westminster. Paper by Mr. J. P. Orr, C.S.I., C.B.E., entitled "Zoning Investigations in London." 6 p.m.

Competition News.

The R.I.B.A. Competitions Committee desire to call the attention of Members and Licentiates to the fact that the conditions of the Trujillo's Statue of "Liberty" Competition are unsatisfactory. The Committee are in negotiation with the promoters in the hope of securing an amendment. In the meantime Members and Licentiates are advised to take no part in the competition.

The assessors appointed to adjudicate on designs received for the "Daily Mail" Labour-saving House, the approximate cost of which was to be £2,500, and for which 382 designs were submitted, have made the following award: First prize, £300, Mr P. D. Hepworth, A.R.I.B.A., E.D.B.A. Second prize, £125, Mr. P. D. Hepworth, A.R.I.B.A., E.D.B.A., in conjunction with Mr. J. Dreschfield. Third prize, £75, Mr. Alfred Williams and Partners. Messrs. H. L. Massey, A.R.I.B.A., A. P. Morgan, A.R.I.B.A., and Mr. F. H. Shearley, A.M.T.P.I., were warmly commended by the assessors.

Mr. Josiah Gunton, F.R.I.B.A., has been elected chairman of the City Lands Committee of the Corporation—the position known as that of "Chief Commoner."

Mr. Sydney Tatchell, F.R.I.B.A., has been appointed by the Council of Almoners the Surveyor to Christ's Hospital on the retirement of Sir Alexander Stenning, who has acted in this capacity for upwards of twenty years.

The Prime Minister and Dame Lloyd George have consented to allow a Drawing-Room Meeting to be held at 10 Downing Street, London, in aid of the Lincoln Cathedral Restoration Fund. Dame Lloyd George will receive the guests, and probably the Prime Minister will also be present.

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London Art Galleries.

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In last week's issue I mentioned briefly the exhibition at the Brook Street Art Gallery of works by the late R. B. Martineau, whose art creation dates from about half a century ago. Mr. Robert Martineau was a friend and pupil of Holman Hunt, and strongly influenced in his art, as the paintings here exhibited showed very unmistakably, by the views of art then being expressed by members of the Pre-Raphaelite Brotherhood. He had commenced life in a lawyer's office, but did not find that atmosphere congenial, and at twenty-five had turned his attention to art: a slow and conscientious worker he took some time to finish, and when he died at the comparatively early age of forty-three there was not a large amount of finished work—some dozen paintings in all—left behind. One of these, and possibly one of his best, "The last day in the old home," has found a home in the National Gallery of British Art, and it seems just possible that another work exhibited here this month, "Picciola," may go to join it, though I am not aware that anything has been yet decided. Martineau's large painting of "Christians and Christians," also exhibited here with several really charming studies for it ("Pencil studies of Girl's Heads" and "Study of a Girl's Head" in colour) was never finished: its subject dealt with the persecution and expulsion of the Jews from England in the thirteenth century, and its background of ancient houses had been carefully studied from Lincoln and Conway.

Martineau seems to have been a delightful personality, something of a musician as well as artist, and his work shows tender feeling beside very careful study; and occasionally somewhat of a Dickens' flavour, which belonged to his age. An example of his careful scaffolding is shown here in a well-painted study of old armour for his "Last day in the old home": quite one of the lesser lights, as I should take it, among the Pre-Raphaelites, without Rossetti's imaginative gifts or Millais' technical mastery, he is still one whose work deserves to be remembered, and is entirely typical of the movement in which he found his inspiration. The coming exhibition at the Brook Street Gallery is of flower paintings by H. D'Arcy Hart, in next week.

At Walker's Galleries this month an attractive exhibition of water-colour landscape is that of Mr. Percy Lancaster, R.I.B.A., to which I also alluded last week. Mr. Lancaster is at his best in cloud effects, such as those shown here in "Playtime," "In Suffolk," "Barden Moor," and "On the Dunes"; and in the suggestion of wind in "The Hayfield," a delightful scene of English countryside, with the wind stirring through the great elm trees. The effect of cloud "cumuli" and cloud openings suffused with half-veiled light is well shown in "The Top of the Hill" and "Sunshine and Shower"; but the artist sometimes tends (possibly from his experience as an etcher) to over-accentuate his darks, in such subjects as "Twilight in Wharfdale" and "The Boat Camp."

A little lower down New Bond Street at the Fine Art Society we find landscape in oil admirably handled by the late Alexander Fuller-Maitland. I remember seeing this artist's work at the Brighton Public Art Galleries some little time ago, and noticed in these columns his sea-scapes with their modulation of delicate greys.

We find the same thing in his "Early Morning in the Channel" and "The Mirror of the Sands," in a very full and representative display, numbering nearly a hundred paintings, all in oil, for I believe Captain Fuller-Maitland kept entirely to this medium. But what his mastery over landscape painting was we can see here in his "Rock and Stream," a study of very remarkable power, with which may be compared his "Welsh Stream," which is almost as strong. Strength and brilliancy are obviously the qualities sought for here, and, it seems to me, attained in a very remarkable way: though the artist does not by any means always keep on this high level, and I consider such a work as his study here of "The Canal" to be confused and unpleasantly assertive.

Brighton, with her present greatly improved communications, is sufficiently near London to be included in my account of exhibitions, and last week at the Brighton Public Art Galleries the exhibition of works by members of the Brighton Arts Club and the Sussex Women's Art Club was one of the most important annual features, and this year distinctly successful. This good result is, no doubt, due to the wise arrangement of combining the two local art societies, and bringing the ladies to aid in this exhibition. In fact, the Sussex women have for some years kept a very good standard, and this year Miss Florence Norman, Miss Mary Jellicoe, in her portrait of Sir John Otter, Miss Savill ("Shopping To-day"), Miss Blanche Constable, in her charming pencil drawings of Venice and Florence, Mrs. Walter Donne ("Twilight at Shoreham-by-Sea") are to be commended, while in figure work Mrs. Averil Burleigh is vigorous, almost brilliant, in two of her water-colour studies dealing with the virgin huntress ("Diana" and "Dian's Pool"), and Miss Amy Sawyer shows delightful invention in her "Two Witches Anointing Themselves." I was decidedly impressed by a water colour in the first room by W. Hyams of "Seaford Bay": that point of departure for Dieppe is seen under stormy conditions, with a grey sky, scudding clouds, and an angry sea showing its teeth, but the handling is strong and most effective and secure. Mr. Mileham has a figure subject, "The Fisherman's Return," and among the portraits by Mr. C. H. H. Burleigh, R.O.I., his "Chinese Robe" is the most successful, while he has one of those scenes of Brighton Front, "The Old Steyne, 1921," which he has made almost a speciality. In the water-colour work I liked especially "The Cathedral, Arras," by Louis Ginnett, R.O.I., a clever little landscape "A Byway," by Charles Harrington, and two studies of Downland ("On the South Downs" and "Beeding Downs") by Stewart Acton, which really give something of the sense of immense space which is one of the attractions of the Sussex Downs.

Two art publications of interest are the translation by G. C. Richards of Dr. E. Buschor's work on "Greek Vase-Paintings," published by Chatto and Windus, and the great work on "Windsor Castle and Architectural History," by W. H. St. John Hope, Litt.D., D.C.L. The former of these is already before the public; the latter, collected and written by command of Queen Victoria, King Edward VII., and our present King, will appear next autumn, and promises to be a splendid work, fully worthy of its historic subject, and in which one interesting feature will be the reproduction in colour of many of Paul Sandby's original drawings.

I am informed by the authorities of our National Gallery that a portrait group of considerable interest has just been placed on view. This is the famous Van Dyck painting from Panshanger, which was long known by the incorrect title of the "Lords John and Bernard Stuart." This is now stated to be really the portraits of "George and Francis Villiers." They are two young men of singular beauty and distinction, the first-named of whom, George Villiers was afterwards to become famous, if not notorious, in England's story under the name of the Duke of Buckingham, the ill-fated favourite of Charles I. Francis Villiers was known, from his personal beauty, as "the beautiful Francis Villiers"; he was killed, in those stormy times, in a skirmish at Kingston in 1648.

S. B.

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The Architectural Association.

An ordinary general meeting of the A.A. was held at 34-35 Bedford Square, W.C., on Monday, January 30. Mr. J. Alan Slater, M.A., A.R.I.B.A., hon. secretary, who was in the chair, proposed a vote of sympathy to their President, Mr. W. G. Newton, on the death of his father. Mr. Ernest Newton had been a personal friend of many of the members. The vote of condolence was passed by the members standing in silence.

Eight nominations for membership were announced, also the election of twelve new members and the reinstatement of Mr. W. H. Ansell. Three additional subscriptions have been received to the A.A. Debenture Issue since the last meeting—viz., Mr. John Slater, £200; Mr. J. H. Kerner-Greenwood, £100; and Mr. Walter Clegg, £100.

After this preliminary business had been transacted, at the conclusion of the usual informal supper, the principal topic of the evening was then broached.

"Ourselves."—The Commercial Ideal.

Mr. H. B. Creswell, F.R.I.B.A., in the course of his address on the above subject, said that the circumstance that had led him to propose himself to the Secretary as a speaker was the appearance last year of Mr. Gordon Selfridge before the Architectural Association scenes. There was much that Mr. Selfridge could have told, as, for instance, why, having regard to the principles he advocates, he is so cautious, parsimonious, experimental, and tentative; why his shop is such a small one; and why there are still so many other shops in Oxford Street. Why has he not adopted an entire newspaper? It is reported that he is building a tower 500 ft. high to celebrate umbrellas, bathing-drawers, and what not. Why only 500? But Mr. Selfridge instead brought a message which is presumably one of the newest truths known to American retail trade. The message was that Architecture pays the shopkeeper. That it pays him as an advertisement. That it is the function of Architecture to advertise the shopkeeper, and that, in the interests of Architecture, the shopkeeper ought to be made the object of propaganda—worked presumably through a publicity agent.

This message was typical of the modern Commercial Ideal. But a community of young men entering on the threshold of a career in an art and a profession should approach this subject, not in the thin, starved light of expediency, but in that of robust, clear-eyed English manhood. How different was the message of Thomas Huxley, an Englishman who had nothing to do with commerce and who spent his life, not in the pursuit of material power and gain, but in devotion to a similar plane of ambition—for Science and Art are on the same plane—as that which brings students of architecture together. "Civilisation," he said, "can advance only along the lines of veracity of thought and action." Those simple words not only bear the impress of truth—we know they are true—but they sound in the mind like the voice of doom. The words have special weight for Huxley, above all men, abhorred unction and platitudes, and was contemptuous of doctrinal religion.

Mr. Creswell said he would like first to dispose of the proposal to "boost" architecture by innoculating shopkeepers with the idea that architecture pays as an advertisement, and he proposed to do so on the plane on which the proposal was made—that is, on the lowest plane, the plane of worldly expediency.

In the first place, the shopkeeper knows much better than an architect can tell him what is good for him. He has been struggling for years, and is still struggling, to surpass himself and his rivals in this particular of his frontage, and the results are perfectly successful, because they are perfectly natural and logical. The generality of shop fronts are vulgar, pretentious, and tasteless, which is exactly what they ought to be, for nearly everything sold in shops pretends to be something different from, and better than, what it really is; or is a substitute, or an imitation, or even a deception. This is not due to individual cupidity, but is an established system, fastened upon the community by the Commercial Ideal. If it were not for certain Acts of Parliament it would hardly be possible to buy anything under its true description. It is a remarkable fact that it is those shops that are not mere salesmen's lairs elevated into notoriety by advertisement, but which live on reputation and tradition, and where the name over the door is a guarantee of the goods in which the firm specialises, that the architectural qualities of the front are usually satisfactory, and often tasteful; while the old shop fronts, which came into existence before vaunting advertisement darkened the outlook for honest endeavour, are frequently delightful for their expressive taste.

The proposal is, then, to initiate an intensive culture among shop fronts; to impose a true architecture where a false has planted itself and dignify purposes which lack dignity by the glamour of an art whose forms, so far as they are esteemed, owe their expressiveness to the glorious traditions with which they are associated. The proposal is to deck out the relative squalor of shops with the borrowed glories of Greece, Rome, Italy, and so on. The thing cannot be done. The beauty or majesty of a building does *not* depend upon its gratifying prejudices of the eye but upon its raising stimulating trains of meditation in the mind. Why can a factory chimney by no art be made beautiful, and a lighthouse scarcely escape beauty when no æsthetic principles have been involved in its construction? Why can architecture have nothing to do with refuse destructors or sewage works?

Let us suppose that this idea has been put into effect; that propaganda has achieved its disingenuous end; that beautiful towers, each a triumph of architectural skill, raise their proud heads into the sky severally proclaiming "waist shirts," "high shoes," "umbrellas to mend," and so forth; while in the street below an arcaded Italian niche of Sienna marble panelled in lapis with ormulu caps and bases, and an onyx plinth enshrines a tin of curried rabbit marked down from 1s. 1d. to 9½d.

Suppose that these beautiful buildings encompassed us; for how long would we receive pleasure from the vision of them? For just so long, surely, as the glamour associated with the architectural principles they embodied disguised the motive that brought them into existence, and the ideas they stood for, and no longer. So soon as we came to recognise that each of these edifices was a mere flaunting boast, that its motive was insincere, that it raised no trains of reflection from which the mind would not wish to escape, we should hate it and its fellows alike; and soon, from hating the buildings, we should come to hate the architectural forms by which we severally recognised them. Just as architecture is built up of noble traditions, so will it be torn down by ignoble associations. How could the debris of commercial usages be availed of for any such purpose? One might with greater hope of success build a Cathedral with lumps of furnace clinker. Already that beautiful wood mahogany has become discredited owing to its association with shops and public-houses. The association of marbles with pretentious devices for trapping the vanity of our suburban population has made it painfully inappropriate as an adjunct to the worship of the divinity. To kneel in one of the side-chapels or chantries in Westminster Cathedral makes one feel as though one were doing homage to Messrs. Perlmutter and Potash. Browning, in a well-known poem, shows us a mediæval Bishop ordering his tomb. If any Bishop should attempt to do the same thing after Mr. Selfridge's millennium has arrived he would be baulked by the consideration that whatever of richness and splendour he might devise, his niche in the Cathedral would still remain second to Pimple's Fish Bar in Martin's Lane.

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All this, continued Mr. Creswell, does not imply that the operations of commerce are necessarily or generally dishonest, or that there is anything contemptible in the trade of shop-keeping. The usages of trade comprehend special codes, and those who engage in a trade must adopt its appropriate code. There are honourable, as there are dishonourable, in every trade, calling, or profession, and in contrasting antagonistic ideals it is the ideal only, and not the persons in whom those ideals are exemplified, that we approve or condemn. We may stand for one set of principles, others may stand for a different set. Moreover, the Commercial Ideal is by no means confined to the field of trade. Mr. Selfridge's remarks do not seem to have been traversed or even criticised, and letters were published in the building papers which had been written with the object of keeping the subject alive.

Now the Commercial Ideal is subversive of all that gives dignity to life, and of nearly all that makes life worth living; it is in direct antagonism to the spirit which has endowed civilisation with the glories of art, science, and letters; it would have made impossible any of the achievements of great men in service to humanity; and, wherever it rules, the principle of "veracity of thought and action" will scarcely raise its head out of the mud. How, then, can it be that an Association of young men (in whom, if anywhere, one must look for enthusiasm, devotion to high causes, inspired ambitions, and clean convictions) should swallow down Mr. Selfridge's dose without any signs of restiveness or after-pains. There is only one explanation—that, living in a world in which popular usages, the conventions of thought, the public conscience itself is saturated with the Commercial Ideal, which is increasingly invading the arts, science, and the professions and thus poisoning the nation at the very heart and core of its strength and honour, they were perhaps not aware of the objectionable savours of the times in which they live—just as a gasfitter is the last man to notice a smell of gas.

The Commercial Ideal consists in supplanting the true significance of everything in the world by a material evaluation. The root germ of it is the worship of success, and the measuring of success in terms of popular notoriety—or money, which are very much the same thing. The pure unsophisticated impulse of humanity is to esteem men and achievements by their quality; by their importance in the service of humanity; by their appeal to lofty emotion, by their advancement of the higher destinies of man. No one can attain to such achievement except in a spirit of selflessness; and humanity is aware of this, for human nature is sensitive to its own honour. It holds in affectionate memory the great achievements of such men, and of such men *only*. No achievement the world remembers with admiration was effected in pursuit of success or of power or of money. The large majority of such supreme achievements have never been paid for even on the basis of a living wage, and few indeed by a fee that much exceeded that scale. If Commercial Ideals ruled the roost, doctors would guard their "best patients" from health, as devotedly as from death; artists, in all fields, would aim to catch popularity on the hop, and in succeeding, or failing, effect nothing; and scientists would confine their research to the realm of public utility and leave their work half done to traffic in their own discoveries. A certain type of mind—which is becoming increasingly identified with the public mind—is ready to suppose that these are actually the normal motives in the pursuit of art and science and the practice of professions. The ideas that life thrusts upon our attention at every turn are such things as the price given for a picture; the salary of an actor, the earnings of a dramatist, the "circulation" of an author, the fortune of an inventor. None of these values have any real meaning. The result of the insistence of this point of view all about us is to lead men to imagine that a popular vogue is in itself a measure of merit, or allows them to be tempted away—naturally enough—to win the kind of fame that is notorious and applauded, rather than toil to the remote goal of true attainment. Accordingly, they pursue ignorant taste, scheme to catch public notice, manufacture plays and books on the model of what has already won favour. The result is that a great deal in art and letters which is now forced upon the public can never have given its inceptors or authors the least thrill or the least moment of joy. It is born dead and then "success" is dust and ashes in their mouths.

The next lead given us by the Commercial Ideal takes us one step nearer to hell. It is a significant fact that if a single pursuer of the Commercial Ideal, moves down an inch further from the conventional decencies the degradation seems to effect a general lowering of tone all round. The shrewd, hard-headed business men to whom we owe so much have discovered that while a popular vogue is the greatest thing in the world, a humbugging disingenuous pretence and simulation of it is very nearly as good. In the United States the result has been that scarcely anything—book, play, singer, painter—can exist unless it or he is "run," as they call it—that is, boosted, acclaimed, written up, because the shrewd, hard-headed business men of that country are so shouldering each other to push their various exploitations that the public is diverted from forming its own opinion, and making its own choice. The same state of things is growing with us here.

Another result of the Commercial Ideal enlarged upon life is that we are so beset by the studied ambiguities and equivocations of advertisement—"the self-filling pen," "the razor that strops itself"—"the new typewriter that is offered in 'exchange' for an old one," and all the rest of it, that we scarcely know the meaning of the good English words in which we express ourselves. But—yes, there is a "but"—the *but* is that in one respect the Commercial Ideal steadfastly upholds the human ideal upon all fields and on all occasions. Whatever end the Commercial Ideal may have in view, it nearly always acclaims the human ideal. It does this by pretending that its own motives are disinterested, that its flagrant puff is the honest opinion of a disinterested judgment; that its proposals to insure your life, supply you with furniture, clean your teeth, cure your diseases, are, if not purely philanthropic, yet actuated by entirely selfless motives.

The impress of the Commercial Ideal is exhibited in various arts and callings in various but kindred ways.

In pictorial art it raises up dealers who seize on young gifted artists and hold them under a contract to hand over all their work for three or four years in return for a fixed remuneration. The man who pays the piper naturally calls the tune, but the Commercial Ideal tempts painters to repeat their successes and to sit down and go on painting the same picture. It encourages vulgar sensationalism. Any picture that is odd, by being very large or very small or by displaying such differences from the generality of pictures as might arrest the attention of a bright child, is barked about and made the subject of a small excitement. Why? Because it is good for trade. Why should any mortal soul bother about it if it was not?

Literature, so far as it is art, and like other arts, suffers from the same disabilities as painting under the influence of the Commercial Ideal. It induces many publishers to fight shy of manuscripts that are original and forceful works of art. What they want is "best sellers." "Can you do good, thick, sticky sentiment," they ask the author. "Can you turn out smart sob stuff?" The author, on his mettle, delivers the goods.

The Commercial Ideal has led to the *manufacture* of music. Dramatic art has suffered in similar ways by the imposition of the Commercial Ideal. The pursuit of success by managers, who have no care for anything but "success" in the single sense in which they understand the word (that is of large returns), has led to a large number of "shows" being mere repetitions of old ideas, and to actors being earmarked, each for one sort of part. An actor plays the part of an epileptic clergyman in a play that has a long run, and forthwith the Commercial Ideal will not allow him afterwards to play anything but epileptic clergymen.

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To sum up—the Commercial Ideal is loading the world with products of art and manufacture; organisations, ideas, habits, tastes, customs, which have no justification except that they are incidental to the acquisition of money by individuals. Mankind must produce in order to consume, and the individual must work to live, but the natural impulse of human nature, the human ideal, demands of a man that he shall justify himself by producing what is of service to man, or what is beautiful, or what in some way expresses his individual aspirations for the destiny of humanity. That is the natural instinct in man; yet, by compulsion of the Commercial Ideal, a large part of the works of man are not only of no service to humanity, but are a positive disservice, and they can have given no one any satisfaction either in inception or realisation, for no man, as God made him, could set himself deliberately to exploit the ignorance, foibles, and necessities of his fellowmen, any more than he could occupy himself by supplying bad whiskey and unreliable dynamite to savages.

The Commercial Ideal, as exemplified among commercial houses who deal with the production of artists, is tending to squeeze the artist out of existence. The publisher tries to enslave the author by binding him under one contract to as many as seven books, the music publisher and concert agent strives to secure a monopoly by compelling singers to sing only songs published by him and by making use of the powerful position thus secured to force the song writer to disadvantageous contracts; the theatrical manager seeks to limit and enslave the actor, the glass and mosaic manufacturer, the large house decorating firms, and firms dealing in house property, and even firms of constructional engineers, are ready to squeeze out the individual artist and, with the help of "our Mr. Jones," proclaim Messrs. Vinegar, Hissop and Co., Ltd., the designers of the cathedral window, or the architects of the new Georgian wing with reach-me-down plaster swags and mantelpiece, and so on. The position will one day be reached when the architect or decorative artist will have great difficulty in existing individually unless he makes use of commercial methods to flaunt himself into notoriety—and what sort of artist would that man be? The Commercial Ideal, if it continues to make way, will render art, as we estimate it and as the records of the past reveal it, impossible.

Mr. Cresswell thus concluded his address: "As to what we can do to combat this poisonous Ideal, which I hope is as detestable to you as it is to me—Why! we can do a great deal. *We can acknowledge its existence.* That is the great point: to keep restlessly aware of the false, ugly thing, to refuse to accept it as inevitable, to refuse to float like straws down the current of life till we find ourselves in a mud hole. Let us, then, test things, examine motives, tear the false thing out by the roots, proclaim the stupid hypocrisy, wave it in the air, expose it, ridicule it, and denounce it, in thought, in our confidences with friends, in our conversation with acquaintances, and on public occasions. So may we alike honour the memory of the men who have given mankind its proudest heritage, ourselves and our calling."

Discussion.

Mr. Reginald Hallward, in proposing the vote of thanks, said he shared the author's views as expressed in the paper. He had been reminded of the ancient legend that when a man slept he should not be awakened too suddenly for fear his soul should not join his body again. The awakening of this country began suddenly seven years ago, and the soul had not yet established full relationship with the body. But there seemed to be some hope behind Mr. Creswell's statement. That much-used word "democracy" had been brought into the world far in advance of the people's comprehension of it. If it meant the rule of the people, it also meant the fitness of the people to rule. One could not fail to see the groping towards greater reality, and towards a closer correspondence between what man should be and what he is. Young men ought to take nothing for granted, as had been too often done in the past. If they were going to make their art the noble thing it really was, they must get to know the people, and they would then find out that they are not base, but have been deceived.

Mr. Maurice E. Webb pointed out that we were living in a commercial age, and were a nation of shopkeepers. The aim of the architect was to help the shopkeepers without lowering his own standards in order to do it. If a shopkeeper wanted a really fine shop, the architect must do his best; but he would not succeed if he failed to put into that shop more than the shopkeeper expected. The old Italian masters produced their wonderful works because they were asked to do so by the all-powerful Church. We of to-day are asked to produce work for the men of commerce. Unluckily there was a tendency to lower ideals under stress of circumstances. In his opinion Mr. Selfridge had done a great deal for London street design by showing in his own building that a fine work of architecture can stand on its own merits, and that by judicious lighting it can be made as fine by night as by day. Mr. Selfridge's architect did exactly what he was wanted to do, and gave a notable addition to London's fronts. It was up to them individually to see that the architect does not become absorbed in the commercial ideals, or lose his love for the profession. They would doubtless all agree that Sir Charles Ruthen could not have been awfully fond of his profession when he made his recent taunts. Sir Charles had stated that in future architects on housing schemes must go in for the mere boxes of brick that the Ministry of Health are scattering over the countryside. But would the public stand it? Those recent remarks had been condemned from the north of England to the south. That was an encouraging sign. Architects will never admit that a beautiful thing must necessarily be an expensive thing, nor will they allow their hands to be tied. To his mind Sir Charles Ruthen had provided a perfect plot for the next A.A. play. Perhaps Mr. Creswell would consent to assist in the writing of it.

Mr. T. S. Tait thought that the lecturer had been very hard on Mr. Selfridge, who in his paper before the A.A. had aimed at a high ideal and had placed architecture first among man-created things. The architect had got to deal with the commercial man's problems, and it was up to him to treat them in a high way to the best of his ability. Commercialism was a thing they could not get rid of nowadays.

Mr. H. T. Buckland regretted that Mr. Selfridge had not been present so as to reply to Mr. Creswell. The proper revenge would be for Mr. Selfridge to employ the lecturer to design his next shop extension, and then afterwards for Mr. Creswell to give a future meeting the benefit of his change of ideas.

Messrs. M. Robertson, C. Pakington, F. E. Bennett, Ackerman, and L. S. Sullivan also spoke.

The vote of thanks was passed by acclamation.

Mr. Creswell, in his reply, said he was conscious that his paper had completely failed, for no one seemed to have the least idea of what he had been driving at. He had said nothing against commerce—which was a necessary thing—but only against the Commercial Ideal as being a bad, unnecessary thing which had recently sprung up and was rotting public opinion. Nearly everything sold to-day was a humbug and a sham. The danger was that Mr. Selfridge's type of mind might become predominant. Personally Mr. Selfridge was no doubt an excellent man. It was his point of view to which objection was taken. What will the world be like if everything is done from the point of view of gain? It was not for architects to follow the Commercial Ideal but to combat it. If one was asked to design a shop one had to do the best one could and to dignify it. The Commercial Ideal was veiled; it was only by dragging it into the open that the human ideal could be restored.

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Correspondence.

Housing Wrangle.

To the Editor of THE ARCHITECT.

SIR,—*A propos* of the criticism arising out of Sir Charles Ruthen's paper read before the Society of Architects, it would seem that the primary facts in this discussion are being overlooked. These simple elementary facts are very important and worthy of investigation; whether pleasant or unpleasant—largely dependent upon one's perspective—should nevertheless be frankly faced. If the architectural profession will embark upon a great national scheme, such as housing, it must be prepared to face whatever criticism—rightly or wrongly—that may be levied against it, be it designated "political" or what not. Architects, after all, are only a small fraction of the community of taxpayers and ratepayers, and it is an admitted axiom "that those who pay the piper are entitled to call the tune." A self-examination and self-criticism on the part of the architectural profession would not come amiss at this juncture, if only to purge it of deluded notions as to its proper place and fitness in the scheme of things. Apart from the question of the shortage of houses, all will be agreed that a vast number of the houses of this country await demolition and reconstruction, and that most of our towns and cities stand greatly in need of remodelling. Here is work essentially for architects. But, with emphasis on the *but*, work essentially only; its policy is an affair of the community of which architects play a minor part—barely that of guidance and advice. Whatever housing may or may not be, it certainly has a political flavour—let there be no mistake on that point. Housing has failed on the score of costs. Who is, or who are, responsible for these costs? Who can gainsay that it does not rest mainly at the door of architects. In addition to having swelled the costs by their exorbitant fees, they have, by their incapacity and inefficiency, added greatly to the costs.

FORTUNES FOR ARCHITECTS.

We will take the case of fees first. These fees are set out in General Housing Memorandum No. 4, issued by the Ministry of Health in agreement with the Royal Institute of British Architects and the Society of Architects, afterwards revised by General Housing Memorandum No. 31. The chief point of interest to the reader between these two memorandums is that the revised memorandum reduces the fees payable to an architect engaged on a very large scheme, namely over and above 250 houses, otherwise the scale of fees remains the same. To estimate the earnings of architects we will take as a typical example a case in which an architect is engaged upon a scheme comprising 100 houses. In such a scheme the number of distinct types of houses would be about five on the average. This means that the architect would only need to prepare plans of designs for five houses, and from each of which twenty houses would be erected.

Taking the average cost of all types of houses, as per General Housing Memorandum No. 31, at £900 each, which may be considered a reasonable one extending over the period 1919-22, the fees would work out at:—

For General Lay-out.

	£ s. d.	£ s. d.
25 Houses at £1 each	= 25 0 0	
75 „ at 10*s.* each	= 37 10 0	
		62 10 0

For Roads and Sewers.

25 Houses at £2 each	= 50 0 0	
75 „ at £1 each	= 75 0 0	
		125 0 0

For Drawings and Specifications.

12 Houses at £900 each = £10,800 at 5 per cent.	= 540 0 0	
60 „ at £900 each = £54,000 at 2½ per cent.	= 1350 0 0	
28 „ at £900 each = £25,200 at 1½ per cent.	= 378 0 0	
		2,268 0 0

Bills of Quantities.

12 Houses average £900 each, £10,800 at 2 per cent.	= 216 0 0	
60 „ average £900 each, £54,000 at 1 per cent.	= 540 0 0	
28 „ average £900 each, £25,200 at ⅜ per cent.	= 151 0 0	
		907 0 0
Total ...		£3,362 10 0

These do not represent the whole of his fees, as he will have a further charge for adjusting the contract on completion examining the builder's accounts and ascertaining the amount of extras due to fluctuations in wages and prices of materials. Ignoring this, it will be seen that his fees amount to an average of practically £34 per cottage, which is about one-fifth the value of similar cottages in 1914, and is equal to an annual charge on a cottage, reckoned at 6 per cent. interest, of about £2, or approximately 9d. per week in rent. So that for every cottage that is built, the working classes and the public betwixt them are being saddled with at least 9d. per week to cover architects' charges.

And the services the architect renders for these fabulous fees amount to not more in time taken on an average than a day a week for twelve months. A skilled workman in the building trade, paid a wage of 2s. 2d. per hour, working six days (forty-four hours) to the week, would receive in all about £248, as against the architect's pay of £3,362 for one day a week. It is not an uncommon thing for an architect to have schemes in hand amounting to over 1,000 houses, representing in fees, £33,620. Quite a small fortune for the average individual.

SUBSIDISING ARCHITECTS.

Can it be said of architects, in general, entrusted with housing schemes, that they have had the necessary experience? In the early part of 1919 few architects had had any experience in the designing of cottages. The plans they produced at first were in many instances unworkable. This despite the fact that they had as a guide excellent government publications on the subject, setting forth the requirements and conditions, also typical cottage designs, specifications, model bills of quantities, and contract agreement. These publications gave all the information that was required, clearly and concisely, and called forth for no great skill in understanding and carrying out by anyone accustomed to this class of work. As for architects, they had not been trained in this atmosphere, and to entrust the work to them, without the necessary training, was nothing other than a subsidy—a sop for their loss of practice during the war, and a good one at that; six and three-quarter million pounds in fees for 200,000 houses, with a probable further two million pounds to compensate them for abandoned schemes. Is it to be wondered at that this costly experiment is being brought to a close.

ARCHITECTS' SHORTCOMINGS.

With few exceptions architects have done nothing prior to 1914 towards the improvement of working-class dwellings, nor taken part in the pioneer work. It is doubtful whether the bulk of architects in this country had seen the inside of a cottage prior to 1919, let alone familiar with the conditions and requirements of the occupiers of cottages. Hence, the atmosphere created in the design of cottages was an artificial one to them; they were not in sympathy with the work; they had no heart in the work; they lacked what is termed in the architectural profession, "feeling." How then could they hope to make a success of it. They had undertaken this great work for the sake of fees—and solely for the safe of fees, with the result, chaos and high costs.

Architects in general are not as a rule practical men; they are merely imitators, copyists, and appropriators. They did not initiate and develop steel-framed construction, nor reinforced concrete construction, nor sanitary engineering, nor quantity surveying, nor the hundred-and-one improvements in materials used in building. But all these they have appropriated, after being initiated and developed and brought to a successful issue by others. Even in matters of "art," they are largely copyists from the old Greek and Roman masters.

ARCHITECTS RESPONSIBLE FOR HIGH COSTS.

When housing was the concern of architects the cost of building cottages soared higher and higher. They did not give that consideration that was necessary to the financial aspect of the question, yet they sought to blame others. We heard their ineffectual cry of the ca' canny of workers, but in no single instance did they bring forward definite facts upon which they based their charges. It was their business and their duty to have proved it up to the hilt, if true, and not let it rest upon statement alone. They accused builders of profiteering in housing. Again they did not bring forward any proofs. They never once tried to check the rise in the increase in the cost of materials; never brought to notice the manufacturers' excessive profits in light castings (grates, eaves, gutters, and downspouts), cement, bricks, slates, and glass; never investigated or brought to light the

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abnormally high prices charged by builders' merchants for materials.

To what extent there was any truth in the ca' canny of workmen and to what extent builders' merchants profiteered they did not tell us. We can only assume it was on account of their inability to do so. But we now know that there was profiteering with regard to the other matters. Still, no thanks are due to architects for this information. It, nevertheless, does not exonerate them for violating the trust reposed in them—to execute housing economically and to have seen that they were built as well as in former days. To neither of these two can they be credited with.

As custodians of housing they have signally failed in that they have not mastered the financial side of the problem of building cottages. Speaking broadly, they lack knowledge and understanding in matters of values—the thing that plays the all-important part in housing.

The country has been put to a vast expenditure in what would seem the education of architects in housing, to the drafting of thousands of plans at an exorbitant cost, whereas about a couple of hundred or so of plans of various types of houses would have sufficed for the whole of the country. Further, the Government set up a Department to supervise the work of architects and keep them in check, and this must have cost the country umpteen thousands of pounds.

All the same, this latter was a good investment of its kind. It is no exaggeration to say that this Department was instrumental in saving the country millions of pounds by suggesting more economical plans, by checking over-generous specifications, and by recasting layout plans so as to economise in road frontage, in width of roads, and in sewers.

Although this experiment has been a failure and proved disastrous, it does not follow that houses cannot be built—and truly built in every sense of the word—that will give an economic return on the outlay. A more sane and rational method should be devised.—Yours, &c.,

"INDEPENDENCE."

Registration and Unification.

SIR,—With reference to Mr. Healey's letter in the Journal of the R.I.B.A., I note he agrees with Mr. R. G. Wilson, and that these gentlemen are "all out for unification"; so am I.

Mr. Healey pleads "to include within the fold of the R.I.B.A. all architects of the United Kingdom," but Mr. Simpson, our late President, and Mr. Keen, our Hon. Secretary, are most emphatic upon the point that the so-called Unification Scheme means nothing of the sort, but only that certain approved architects might be allowed to join the R.I.B.A. These gentlemen would have the option either to join, or remain outside as at present. To call such a scheme "Unification" is playing with words, and a slight to our intelligence.

No *voluntary* scheme can possibly insure our getting unification; the scheme must be *compulsory*; we must follow the example of the dentists (as advised by the Unification and Registration Sub-Committee), and the proposals for the registration of the American architects. A little thought must show that it is obvious that unification can only be obtained by the passing of a Bill for Registration. We must get registration first, and unification will follow automatically.—Yours, &c.,

The Guildhall, E.C. 2. SYDNEY PERKS.
January 31, 1922.

R.I.B.A. Defence League.

SIR,—We have received a very large number of letters agreeing with the circular recently sent to members of the R.I.B.A., and we have endeavoured to acknowledge every one, but as the letterbox at No. 45 New Bond Street was broken open and all the letters stolen we may have been unable to answer some communications.

It has been exceedingly gratifying to receive so many letters of approval, and it is still more gratifying that no note of disapproval has been received.

Our President has kindly fixed Tuesday, February 7, at 5.30 p.m., for a special general meeting in accordance with the following requisitions:—

To the Council of the R.I.B A.—

We beg to ask that a special general meeting may be called in accordance with our Charter and By-law No. 65, when the following resolution will be moved:—

"This meeting is of opinion that the conditions for the unification of the profession should form part of a Registration Bill, and that the present system of admittance to the Institute, including compulsory examination, should continue in force until a Registration Bill be passed."

Signed by A. W. S. Cross (Vice-President), H. D. Searles Wood (Vice-President), George Hubbard, Sydney Perks, Albert W. Moore, Heaton Comyn, Leonard A. Culliford, Fredk. R. Hiorns, H. G. Fisher, Digby L. Solomon, R. Burnes Dick, J. T. Cackett, Chas. B. Flockton, Henry Tanner, Percival M. Fraser, H. H. Golding, Frederick J. Stevens, F. R. Milburn, W. T. Jones, W. Milburn, G. E. Charlwood, G. H. Gray, Sidney F. Bastow, H. L. Hicks, John White. We are, Sir, yours, &c.,

(Sgd.) A. W. S. CROSS.
H. D. SEARLES WOOD.
GEORGE HUBBARD.
SYDNEY PERKS.

45 New Bond Street, W. 1.
January 30, 1922.

New Columns for Old.

SIR,—I think it will interest you to hear that my company have had the privilege of repolishing the Bryscom marble columns in the westernmost wall piers of the nave of Wells Cathedral.

There are four detached columns in all, twelve feet high and six inches in diameter, each in a single piece. Two of these, it is said, belong to the original work—in other words, go back some six hundred years—while the remaining two were presented to the cathedral by the late Canon Meade about sixty years ago. The material for these columns was, of course, obtained from the quarries at Draycott long before they were worked by the present company, but it shows, I think, that, while our stone is not so well known as we would wish in other parts of the country, in its own locality its possibilities as a building stone and decorative marble have been appreciated for many generations.

It seems worth recording as a matter of interest that before we repolished the columns there was at the height of about four feet six inches from the ground on each of them a small patch where the original polish was retained intact, caused, it is believed, by visitors passing their hands over the material as they walk by.

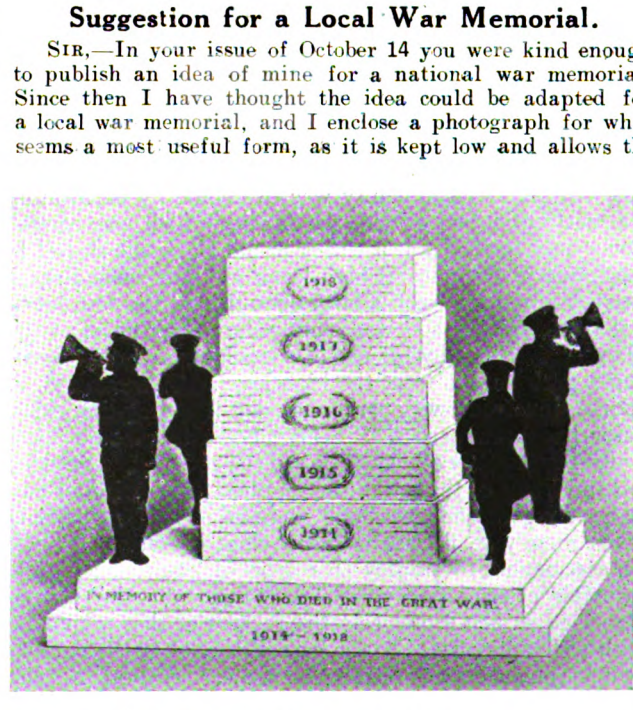
The columns now reappear in all the richness of their pristine beauty.—Yours, etc.,

A. S. GILLIAM, Manager.

Bryscom Quarries, Ltd., Draycott.

Suggestion for a Local War Memorial.

SIR,—In your issue of October 14 you were kind enough to publish an idea of mine for a national war memorial. Since then I have thought the idea could be adapted for a local war memorial, and I enclose a photograph for what seems a most useful form, as it is kept low and allows the



names of those fallen in the war to be on it and read by a passer-by.

As you know, I am neither architect nor sculptor, and it is put freely before the public simply as an idea.

Again thanking you for your kindness and courtesy,—Yours, etc., THOMAS A. MASON.

Temple Court, Reigate, Jan. 16, 1922.

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Modern Methods in Building Construction.—IV.

By Albert Lakeman, M.S.A., M.C.I.

Drag-line Excavators.—The drag-line type of excavator is not likely to be widely adopted for general excavation work in connection with ordinary building schemes, and it cannot be put forward as being so suitable as either of the methods previously described. The reasons for this will be realised when the type of machine and method of working is fully understood. On very large schemes, however, and on certain classes of special work the drag-line and cable-line excavators will be found to have some advantage, and a description of some of the types should be useful and interesting, as the method is not well known in this country.

Generally speaking, drag-line excavators are used for cuttings of large size for drainage purposes, for canals, for handling sand and gravel, and in some instances for preliminary road work over rough ground. In the case of a large building scheme on an open site, when a large subway for the main pipe-lines is to be constructed, it may

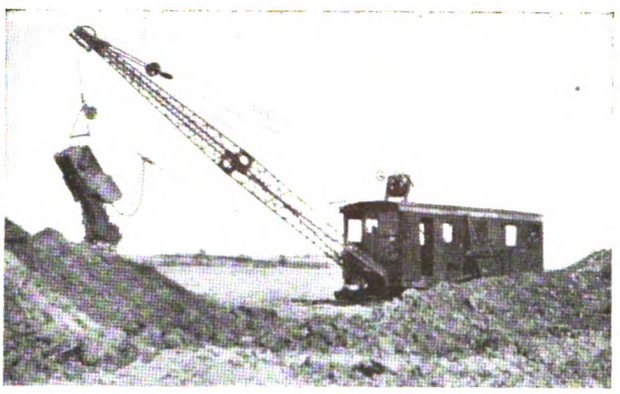


Fig. 24.—MONIGHAN DRAG-LINE EXCAVATOR.

be profitable to erect a cable-line excavator or employ a drag-line type for this work, but the use of a steam shovel is likely to be more satisfactory unless there are some special conditions that render the latter unsuitable. The writer was connected with one scheme wherein a long, deep, and narrow cutting had to be made, and the use of a steam shovel throughout was difficult because it was impossible for the shovel to discharge the contents of the bucket at the high level into the wagons for disposal owing to the depth, and the cutting was too narrow to allow the shovel to swing right round and discharge the soil behind. The difficulty was overcome by performing the cutting in two stages, the first of which was carried down only to that depth which would allow the shovel to discharge at the natural high level, and the second stage was cut up by a steam shovel operating at the low level, but the excavated soil was simply dumped in front of the shovel and raised by the use of a locomotive crane operating a grab bucket from the high level. This method, of course, involved two operations, and if a drag-line excavator had been used with a long boom this could have walked backwards along the line of the cutting and dragged out the whole of the soil to the required depth without any re-handling of the excavated material. This example is given merely to illustrate under what conditions it may be economical to employ this type of equipment. The principle of operation with a drag-line excavator can be described as being precisely the reverse of that employed with a steam shovel. In the case of the latter the digging unit is pushed away from the power section of the machine, whereas with the former it is drawn towards the main body of the machine during the actual removal of the soil. Again, a steam shovel must move forward to cut up the ground in front, while a drag-line excavator is always moving back from the face of the cutting, as it will be either at the side or ahead of the ground already excavated.

A well-known make of equipment is the "Monighan" walking drag-line excavator, made by the Monighan Machine Co., Chicago, and exploited in this country by Lidgerwood, Ltd., of New Broad Street, London, and two illustrations of this machine are given in figs. 24 and 25, the first of which shows a machine excavating a trench for laying a large tile drain, the bucket capacity being one yard cube, and the second a similar type and size at work on some rough ground which is covered with boulders. Some of the claims put forward for this make of excavator can be given, as they indicate the possibilities of this type of machine, and they are therefore of interest. The chief feature, which will be readily appreciated, is its ability to walk in any direction. The traction device of the Monighan is attached to the upper platform, turns with it, and is carried clear of the ground when the machine is excavating. By turning the platform on its turn-table, until aligned in the direction it is desired to move, and then setting the traction device in motion, the machine will advance in this direction, and by stopping the traction and swinging the machine it can be aligned to move in any other direction in a simple manner. This permits the excavator to walk back and forth alongside the work or across ahead of the cutting, thus digging wide trenches with a short boom. When walking ahead of the excavation the machine moves across and alternately excavates from opposite sides of the centre line of the cutting, thus permitting the use of the maximum-size bucket on a short boom with a correspondingly increased excavating capacity. It is claimed that this excavator will walk over any ground firm enough to carry the weight of a man, and that it will walk over rough ground, up and down steep grades, and readily travel around obstructions. There is no time lost in moving up the machine for each setting, as it can be walked at the rate of 25 to 30 feet per minute, enabling it to excavate virtually continuously. It can even be completely erected at the railway station and walked to the site of the work. When jobs are only a few miles apart the machine can be walked from one to another; thus no time is wasted in dismantling and re-erecting. The type of traction allows walking over roads and through fields without tearing up the ground.

Although somewhat difficult to describe explicitly in writing, a note as to the arrangement of the walking device should be of interest. It consists of a heavy steel drive shaft which extends across the upper platform of the excavator, to which is attached a large gear, and at the ends of the shaft are rigidly attached the rotating cams. These cams are of very heavy cast-steel construction with rib reinforcement. Pivotally attached to each cam from a bearing on the outer side and at a considerable distance from its attachment on the shaft is a heavy steel carrying beam. At each end of these carrying beams are attached two chains which are joined to the auxiliary platforms by ring connections attached at the sides and near the ends of these plat-

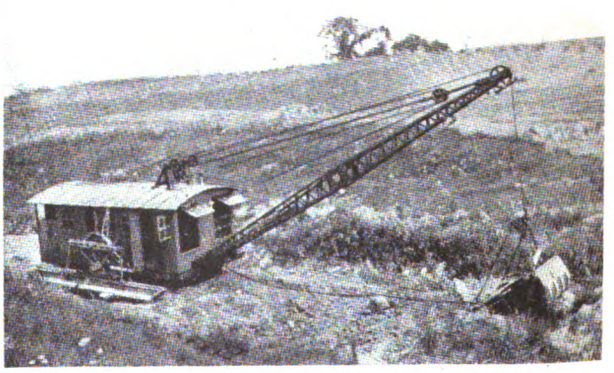


Fig. 25.—DRAG LINE WORKING ON ROUGH GROUND.

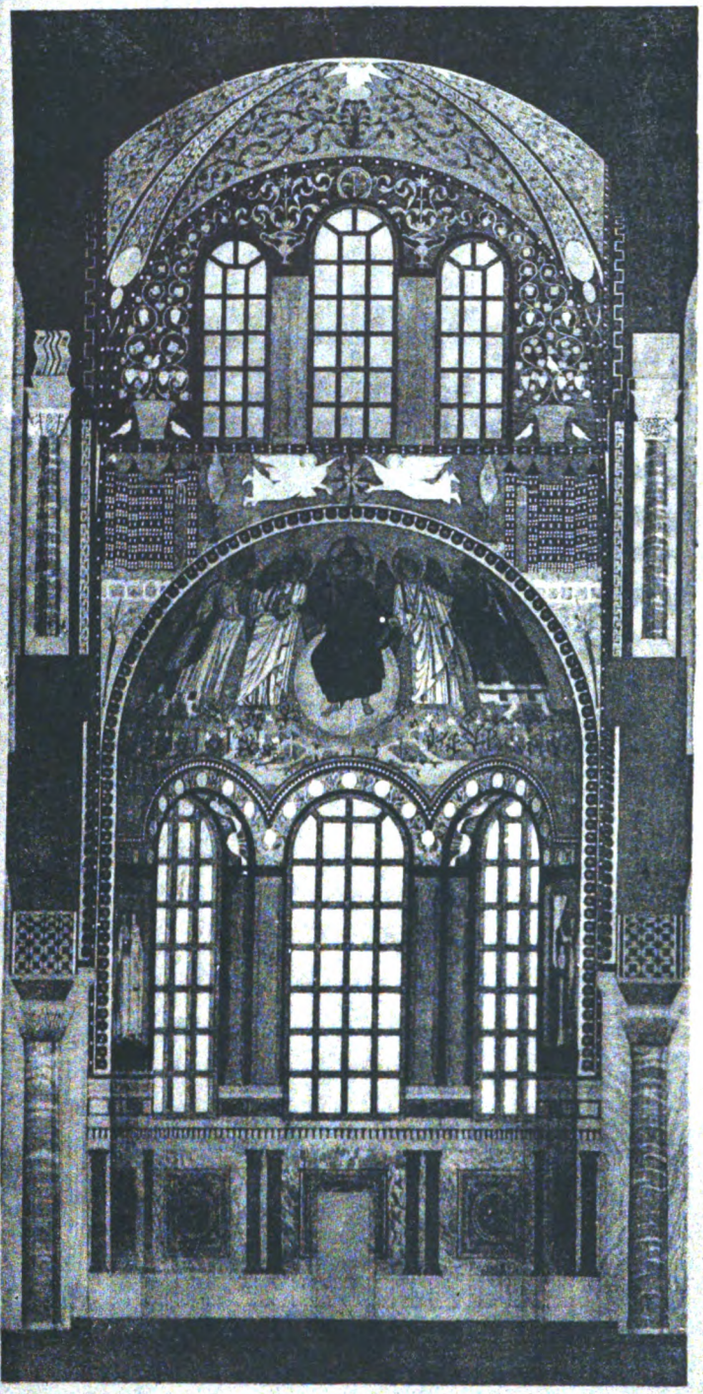
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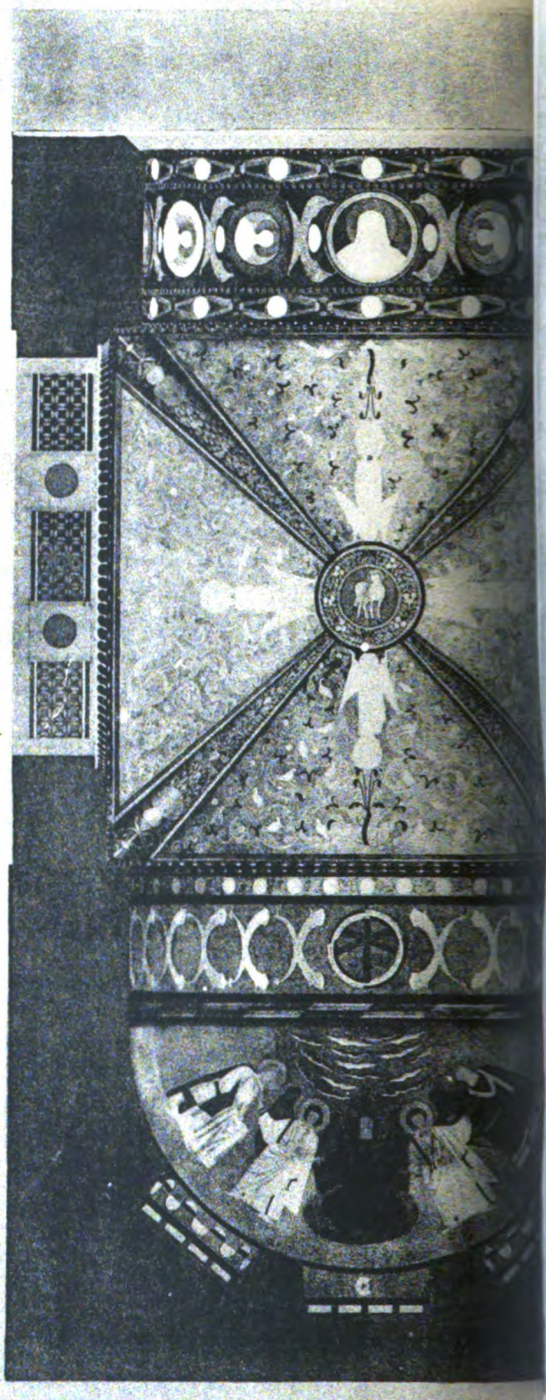
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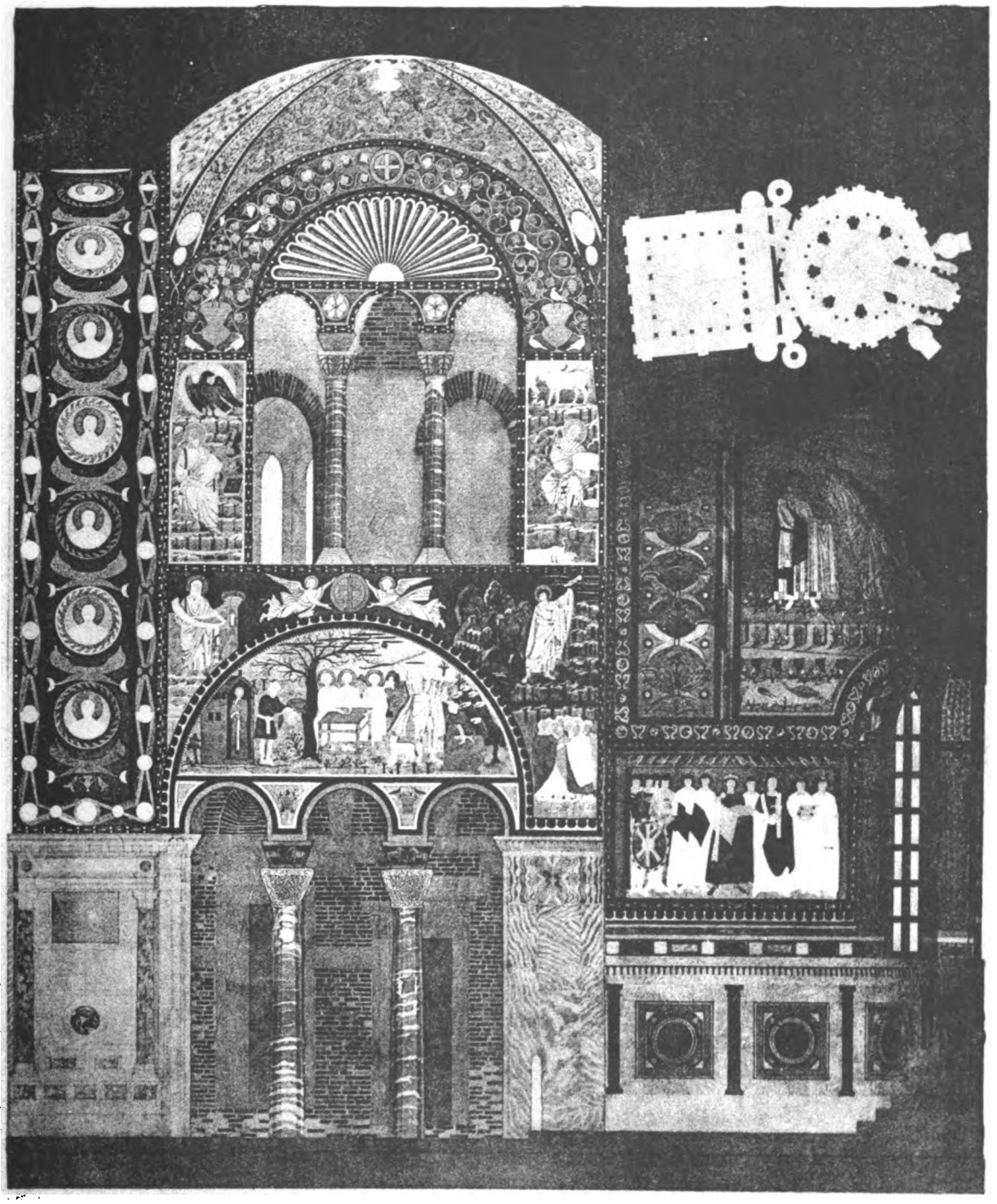
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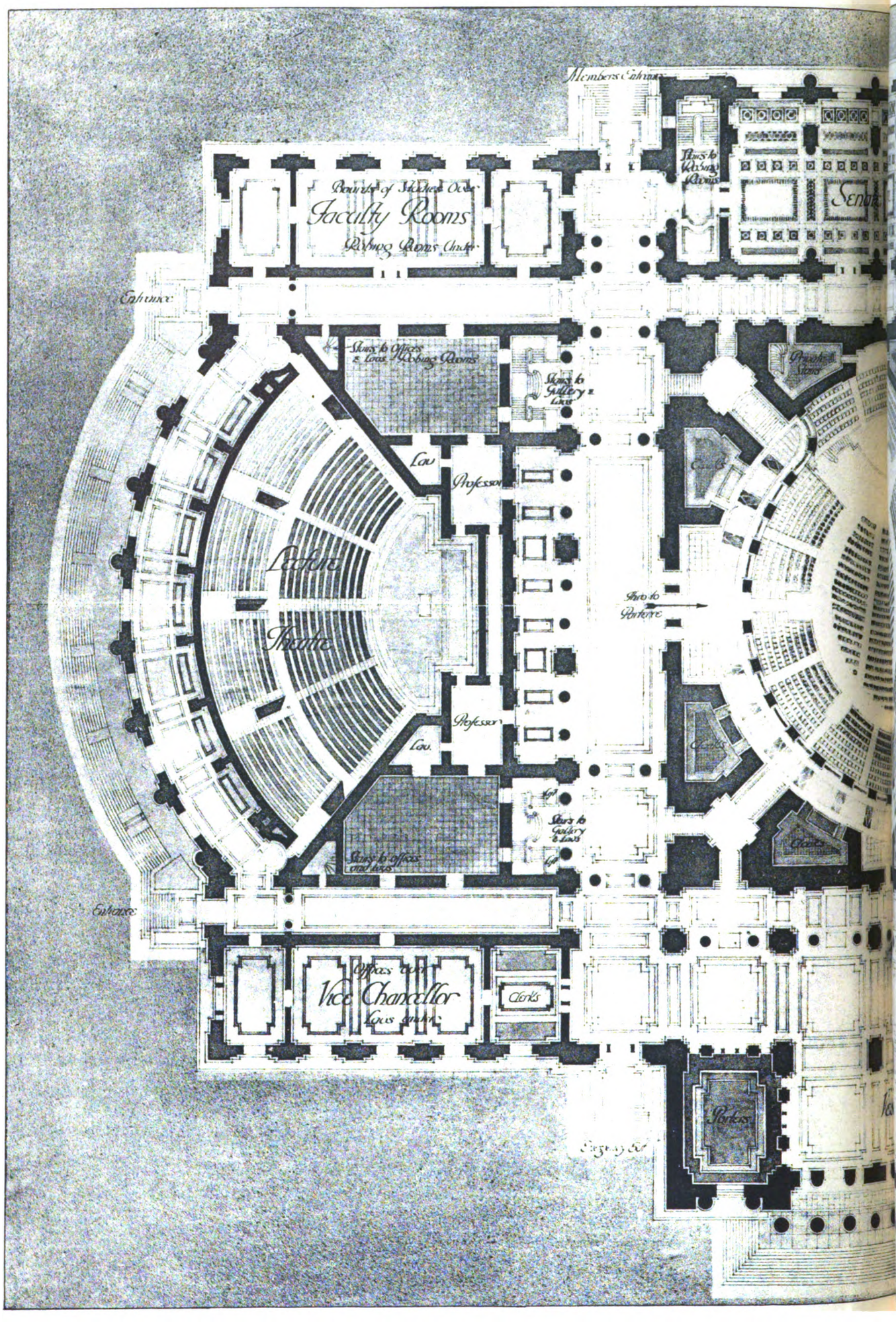
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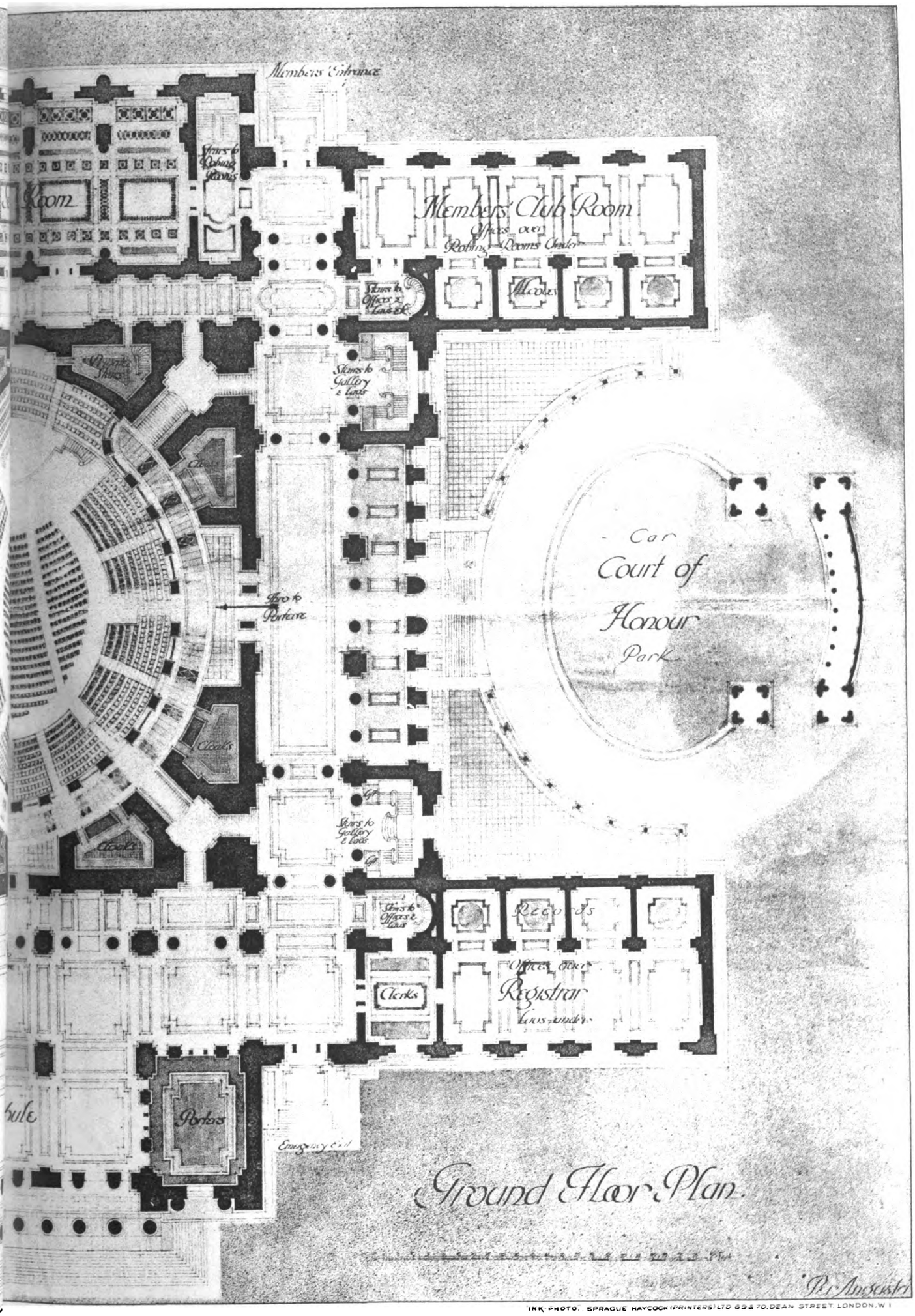
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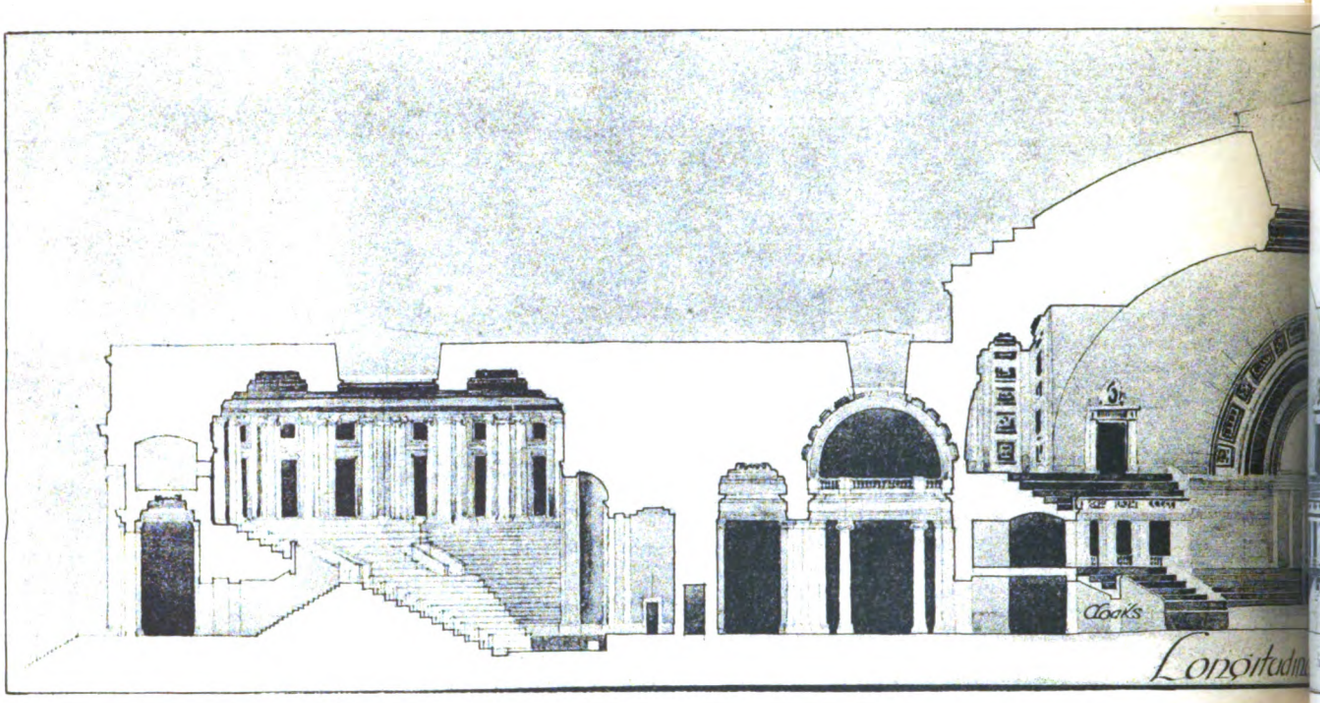
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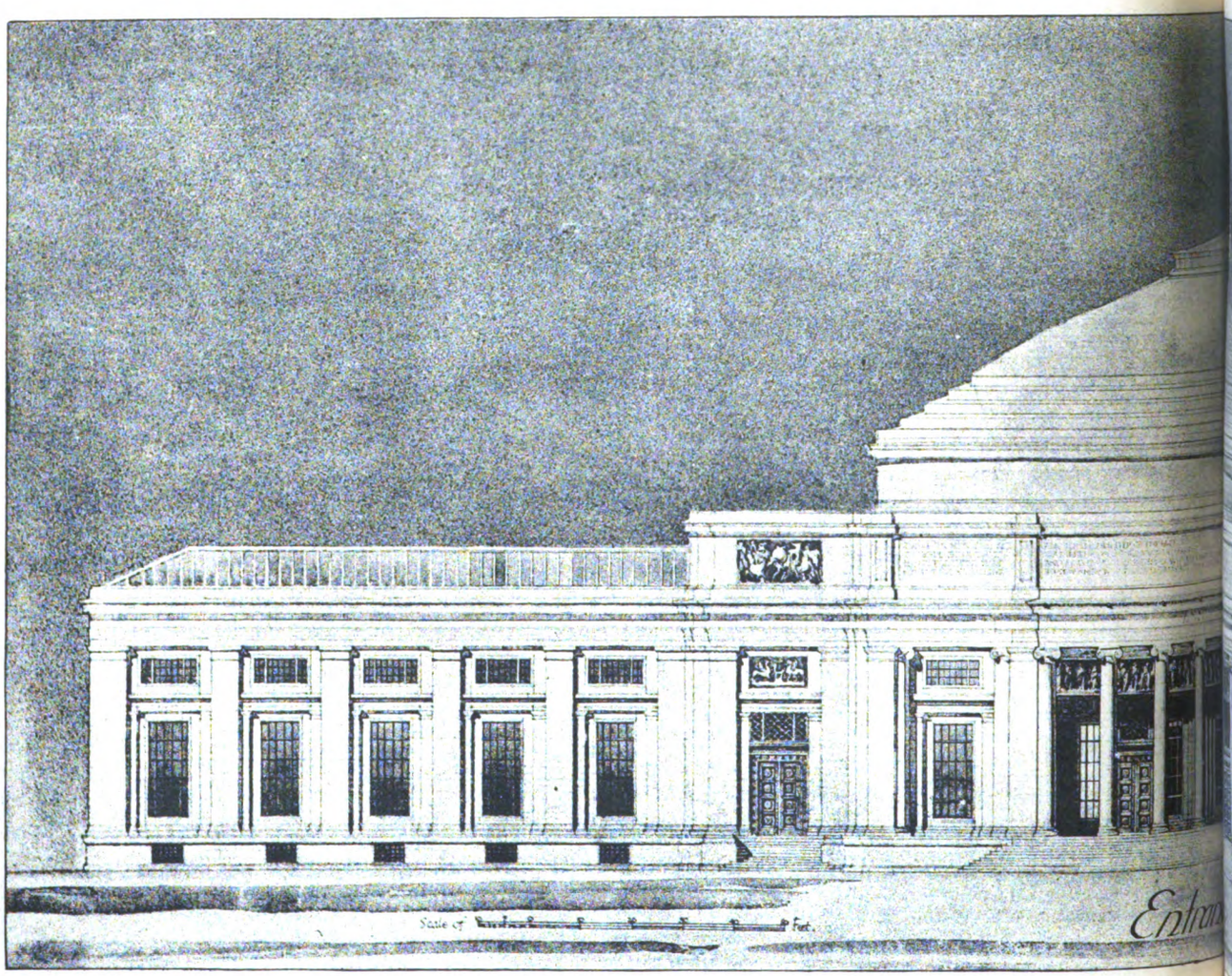
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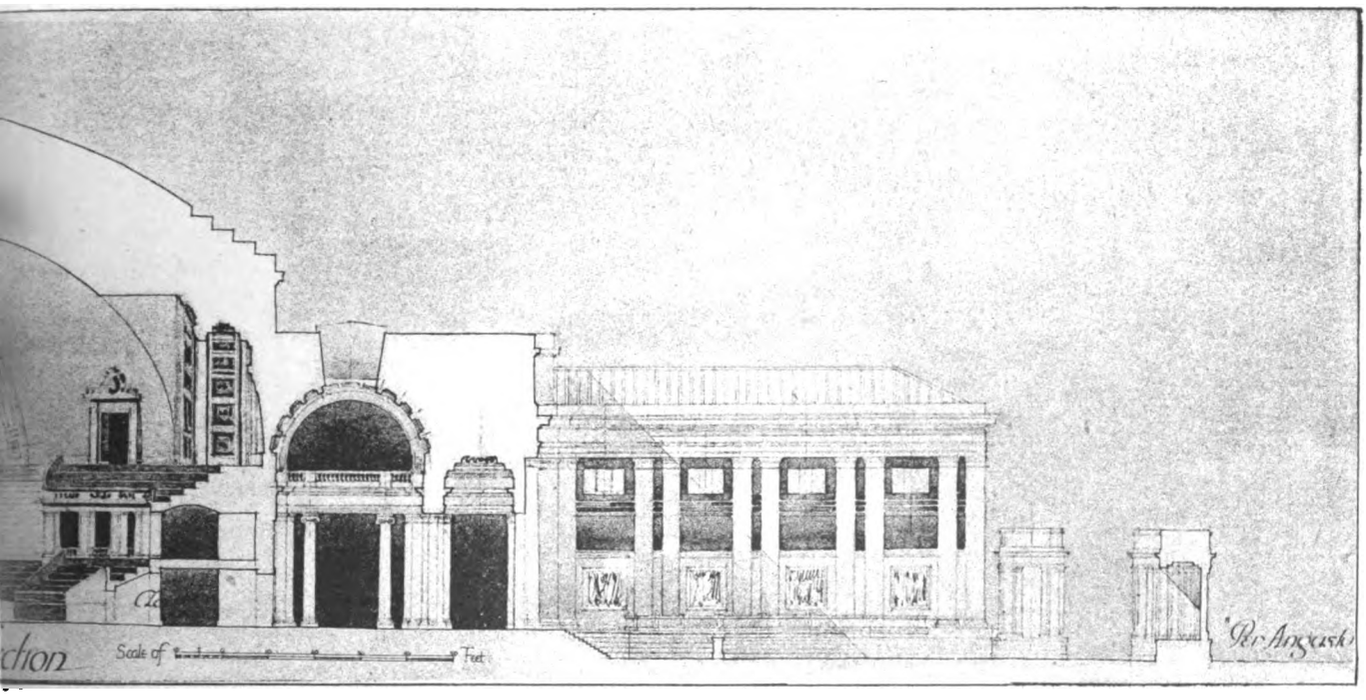


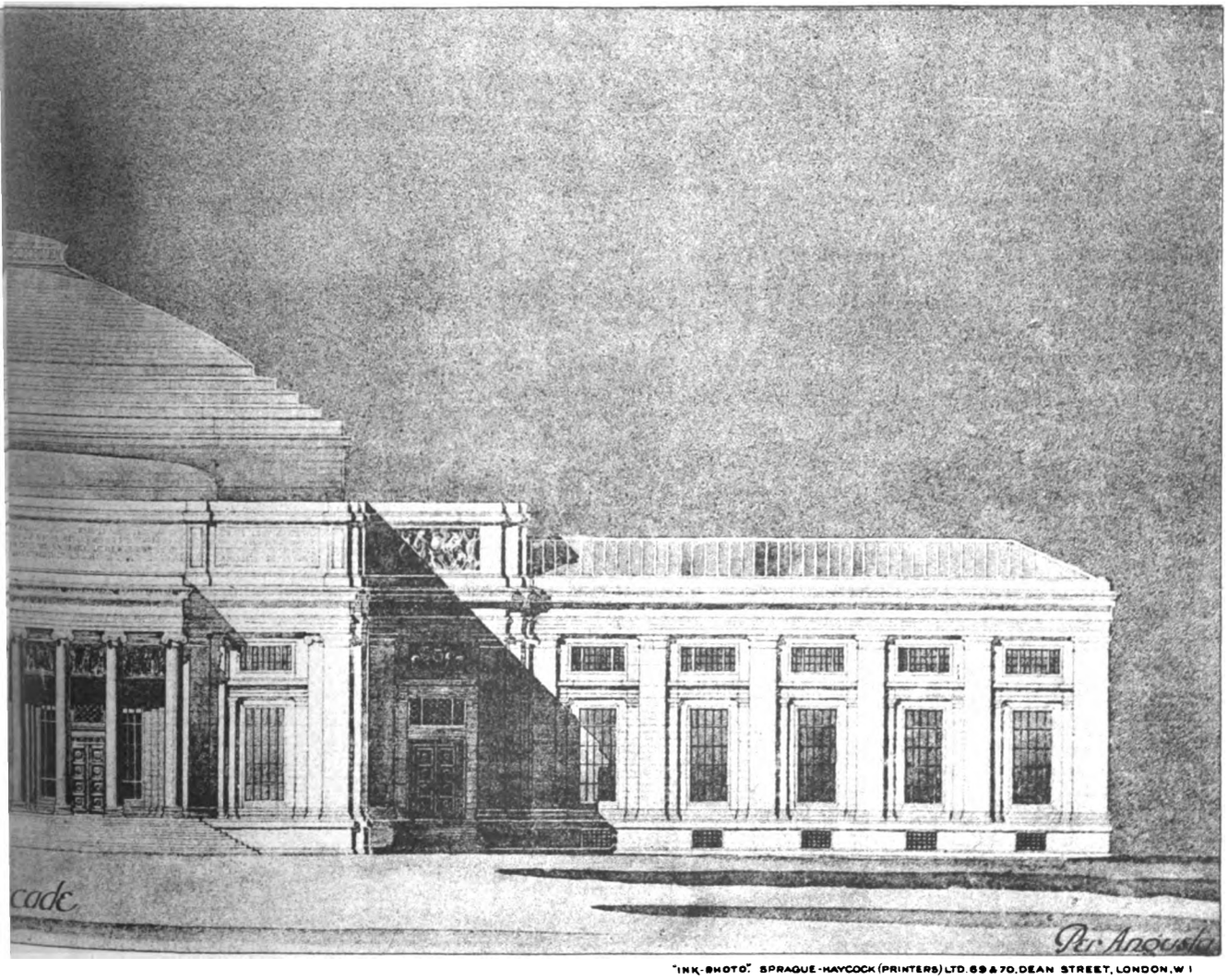


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forms. The frames and track for the cams of each auxiliary platform are made of heavy structural steel with a heavy cast-steel top. The bottoms of these platforms are made of oak planks, which are placed transversely to the length of the machine. When in operation the cam shaft is rotated, causing the cams and carrying beams to lift the auxiliary platforms and swing them forward, until they are again returned to the ground by the cam movement in describing a part of a circle. Continuing the rotation of the shaft after the platforms are lowered to the ground causes the cams to come in contact with the tread plates on the tops of the auxiliary platforms and slide on them, thus gradually raising the rear end of the machine from the ground. When the cams come in contact with the stop blocks on the platforms, they cease to slide and move the machine forward and lower it to the ground, the stops, lugs and cleats aiding in the operation When the machine has been moved the required distance, the cams are stopped in a position which carries the auxiliary platforms free of the ground and holds them in this position by means of a brake. The clutch is then released and the machine resumes excavating.

Three sizes of walking excavators all equipped with internal combustion engines are made by this firm, and, in addition, the two larger sizes can be obtained with steam engines if required. For work where a large amount of excavation has to be done with little moving, two models are also made which are mounted on skids and rollers, and equipped with either steam or internal combustion engines.

The small size walking drag-line excavator has a length of boom of 40 feet, a bucket capacity of 1 cubic yard, and a weight of about 26 tons. The bearing surface of the base is 104 square feet and the bearing surface of the walking platform is 83 square feet. It is claimed that it can be operated by one man only, and the working cost is very low as the 55 horse-power engine can be run for 10 hours with about 45 gallons of petrol and from 1½ to 2 gallons of lubricating oil. The two larger sizes of this type have booms 60 feet long and bucket capacities of 2 and 3 cubic yards respectively, while the weights are about 62 and 75 tons.

Lidgerwood, Ltd., are also the agents in this country for the Hayward Drag Scraper Bucket illustrated in fig. 26, which is made in sizes, from ¾ cubic yard capacity upwards. It is claimed that the omission of cross-bracing in the front permits the material to enter the

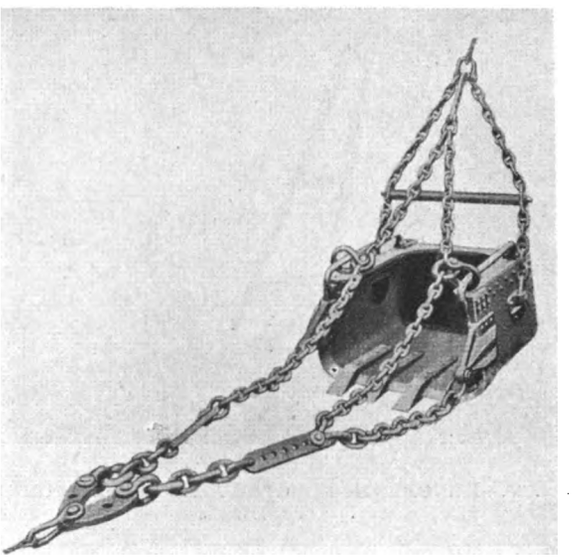


FIG. 26.—HAYWARD DRAG SCRAPER BUCKET.

bucket freely, and as there are no rigid parts in the attachments there is nothing that will break when the bucket lands on its side or top. By making the hauling and dumping bridle shorter or longer by means of a simple adjusting bar the bucket can be made to enter the material at any angle, and it is claimed that it can be successfully used for dragging or excavating any soil from sand to "rotten" rock.

In addition to the walking drag-line excavator, there is a method of using the drag-line and bucket in connection with stationary or semi-stationary plant either for excavation work or for handling sand and gravel on large construction schemes. This type of equipment is known as a cableway drag-line excavator, and it consists of a main mast or tower of any reasonable height, a comparatively low "tail" tower, and a track cable between, along the line of which the bucket operates. A typical installation of this kind is shown in fig. 27, and this is made by Messrs. John M. Henderson and Co., of Aberdeen. It will be seen that the main mast is 130 feet high and the span of the track cable between this mast and the tail tower is 600 feet. The mast is held in position by main and auxiliary guy cables, and the digging

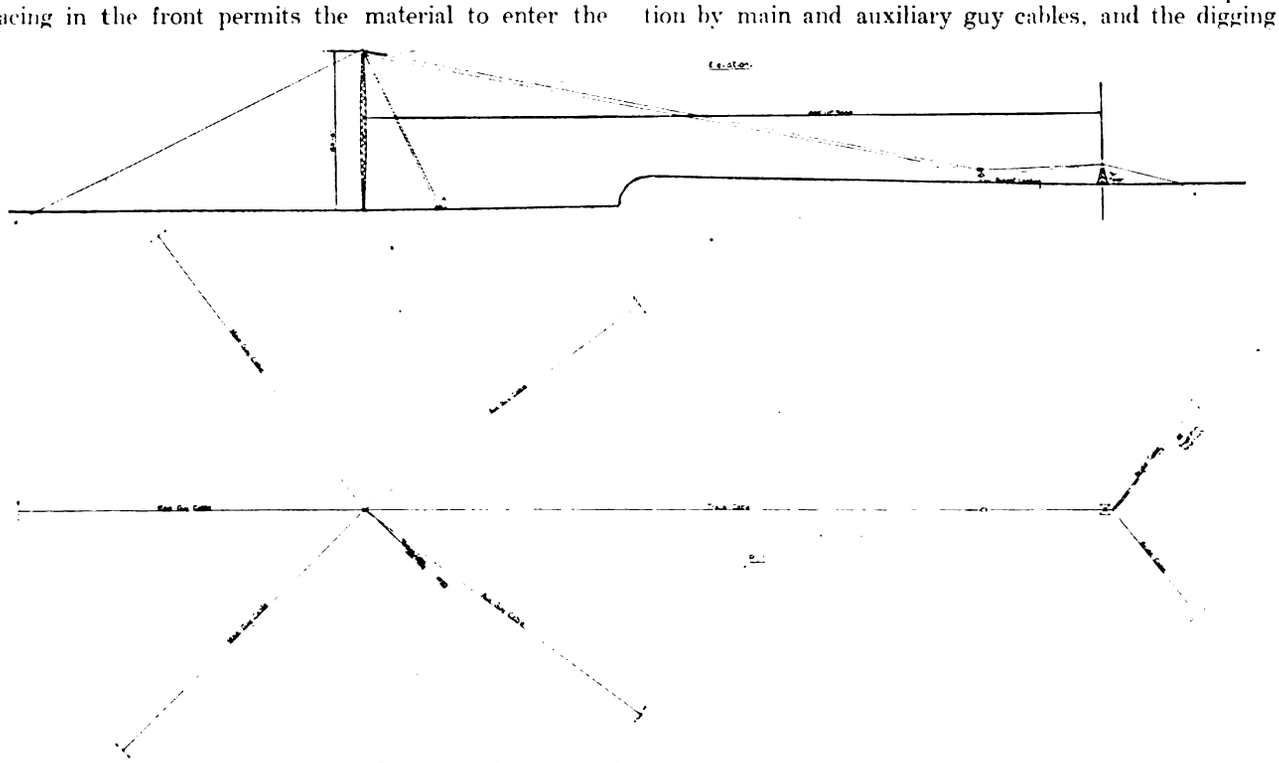


FIG. 27.—CABLEWAY DRAG-LINE EXCAVATOR.

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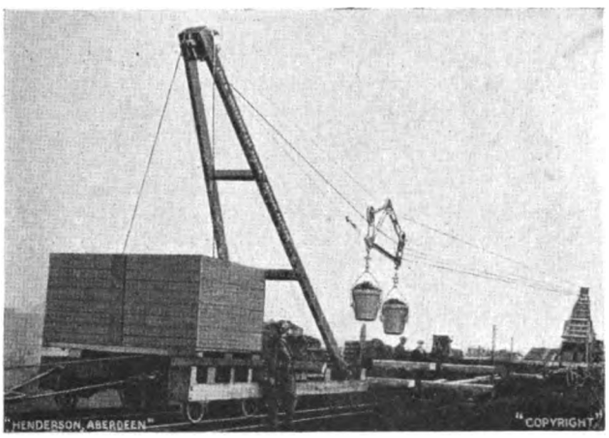


FIG. 28.—HENDERSON ELECTRICALLY-DRIVEN PORTABLE CABLEWAY.

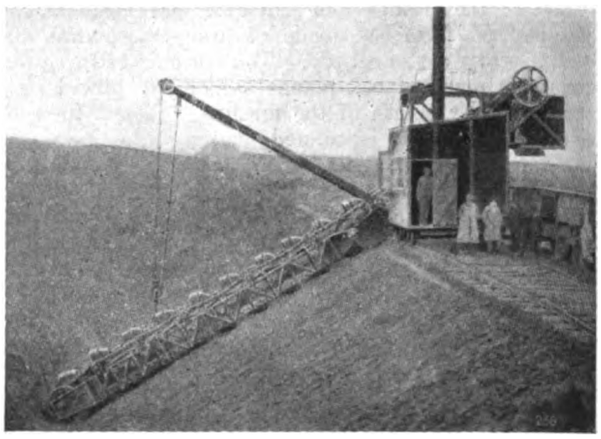


FIG. 30.—CHAIN-AND-BUCKET EXCAVATOR.

operation is performed by operating two cables from the power unit, one of which slacks out or puts tension on to the track cable and the other applies the pull on the bucket when the latter has been dropped down to drag up the soil. This type of installation is, of course, limited in the sphere of its operations as compared with the walking type, but on many schemes it will do all the work that is required, while its simplicity will be a strong recommendation.

While dealing with Henderson cableways for excavation work reference may be made to the electrically-driven portable cableway made by this firm, which is illustrated in fig. 28. This portable cableway is used on trench excavation work, and it has a span of 160 ft. and gross load of 6 cwt.

The Lidgerwood Manufacturing Co., of New York, have developed cableway drag-line excavators to a considerable extent, which they have designated as "straight-line excavators." This firm state that considerable impetus was given to the manufacture of large units for

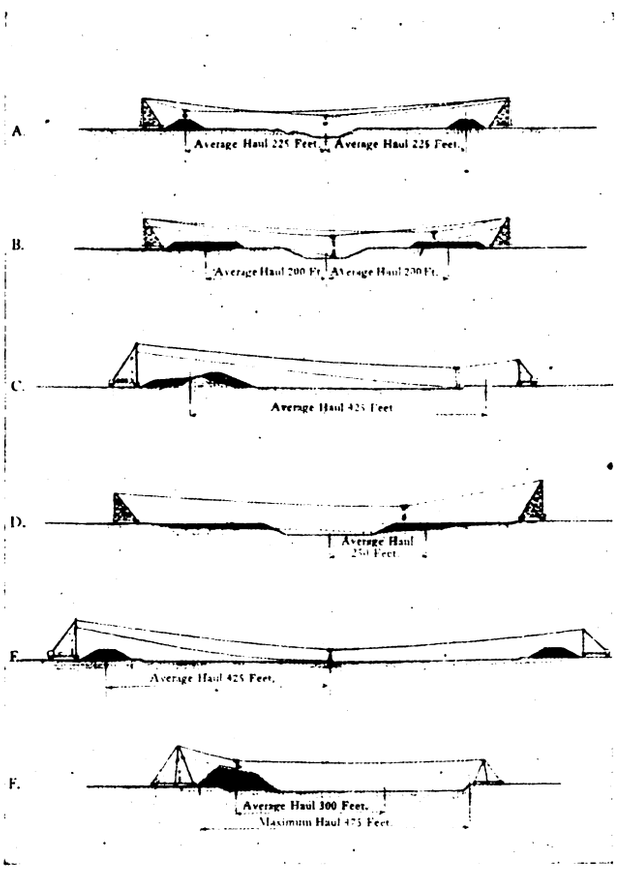


FIG. 29.—STRAIGHT-LINE CABLE EXCAVATORS.

excavation purposes by the digging of the Panama Canal, and since that time progress has been continued by the American manufacturers. The straight-line excavator was developed owing to the need for a method where a greater reach was possible than with a revolving boom type. The length of the booms on the revolving types has been gradually increased to meet the demands of buyers, until as much as 160 ft. has been reached, and buckets have been enlarged up to five and six yards' capacity. This has necessitated a considerable increase in the weight of the equipment, as the weight of the entire machine increases at double the ratio of the increase in the length of the boom, thus doubling the length of the boom, increases fourfold the weight of the machine, with the attendant difficulties in securing foundation for the machine to work on and for the track it moves on. The Lidgerwood straight-line excavator is composed of two towers, known as the head tower and tail tower. These are built with an A frame, having a steel lattice construction back leg. These towers are mounted on triangular shaped steel platforms, which are in turn mounted on standard gauge tracks, and considerable ballast is provided for tailing down. The excavator is capable of operating over a large area, as the towers can be built to give a span of 1,000 ft. between them if necessary, and the mounting permits of sideways travel on the standard gauge track as required. The main engine is carried on the platform of the head tower, and it has these drums for operating the cables.

Some typical Lidgerwood installations are shown in fig. 29, and the following claims of the makers in connection with these are interesting:—Installation A was equipped with two main cables, one of which was operated from each tower. Orange-peel buckets were used by the contractor, and the average haul for each cable was 225 ft. The buckets had a capacity of 1½ cubic yards, and fifty bucket loads per hour per cableway was frequently accomplished. The cost per cubic yard, covering every charge, including maintenance, repairs, fuel, supervision, and a large amount for depreciation, amounted to less than 5d. Installation B was another duplex excavator, but the buckets were of the scraper type. The contractor undertook the digging at a contract price of 10d. per cubic yard, and when the work was finished expressed himself as being quite satisfied with the profit he had made.

Installation C has a span of 670 feet and a bucket capacity of 3 cubic yards. The average output was 400 loads per day of 9½ hours, but as much as 540 loads was reached on some days.

Example D had a maximum haul of 700 feet, and as most of the work was below water a 3 cubic yard capacity clam-shell bucket was used. It is claimed that the soil was removed and distributed on either side of the cutting for less than 5d. per yard cube.

Example E is a proposed installation for a long span,

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and example F shows a conventional Lidgerwood cableway as used before the straight-line excavator with the scraper principle was developed. These few examples of cableway drag-line excavators should be sufficient to indicate their possibilities in connection with very large schemes, and they are particularly useful for the removal of soil, wholly or partly under water, and of such a soft nature that it would be impossible for a large piece of equipment such as a steam shovel to operate directly at the point where the removal is being effected.

An interesting type of excavator made by Messrs. Taylor & Hubbard, of Leicester, is that shown in fig. 30. It consists of an endless chain fitted with buckets which excavate the material and discharge same directly into wagons or trucks.

It can be arranged to travel either at the top of the cutting as here shown or at the bottom with the chain and buckets above. The machine weighs approximately 40 tons, and the type illustrated will excavate to a depth of 20 ft., but this can be increased if required by the application of a longer digging arm.

The theoretical capacity is approximately 190 cubic yards per hour, but the actual output will depend on site conditions and the skill of the operator, and it may be assumed under average conditions at about 66 per cent. of the theoretical capacity.

(To be continued.)

The "Architect" Fifty Years Ago.

FEBRUARY 3, 1872.

NINE HOURS' MOVEMENT IN THE BUILDING TRADE.

The following has been forwarded to us for publication:—

"At a special meeting of the Builders' Society held this day (Monday, January 29, 1872), to consider the Circular addressed by the operative stonemasons to their several employers,

"*It was resolved:*—That, having carefully considered the request of the 'Operative Stonemasons' Society in London and District' to 'continue the nine hours' system all the year round,' and to increase the rate of wages from 8*d.* to 9*d.* per hour, the employers present are of opinion that any diminution of the hours of labour during the summer months is unnecessary, and would cause great inconvenience and public dissatisfaction.

"The present working-hours, as proposed by the operative stone-masons last October and agreed to by the employers, do not exceed an average of fifty-four hours per week all the year round.

"That the wages of all artificers employed in the building-trades, including stonemasons, have been increased three times within the last ten years, and there is no cause shown why a further advance should now be made, nor does the state of trade warrant any such step.

By order,
THOMAS PIPER, Sec.

"Freemasons' Tavern, Jan. 29, 1872."

The Dean of Peterborough has made the following statement with reference to the restoration of the Cathedral: "The bulk of the very serious operations which were required at the east end, the apse, and the eastern chapel is approaching completion, although they have been a good deal more intricate and extensive than could be realised, until the actual process of repair to the structure of the masonry had revealed several new points where there was imminent danger of an early and immediate collapse of that part of the fabric. It should be possible to remove before long the temporary screens which blind the six windows of the apse, in two of which the ancient glass given back to the Cathedral after two and three-quarter centuries' alienation at the Deanery has now been placed. The next most pressing job is the repair of the south-west transept roof, which is ruinous and at the mercy of any storm. So far the response to the appeal for funds has not been discouraging. But if the work is to be completed, especially if the bell tower is to be made structurally secure, so that the bells may again be rung, and if the interior is not to be left as unfitted as it now is to the decencies of cathedral and congregational worship, a steady inflow of subscriptions must be maintained for several years."

National Federation of Building Trades Employers.

The annual general meeting of this Federation was held in the Connaught Rooms, Great Queen Street, W.C., on January 25. Mr. A. J. Forsdike, President, occupied the chair.

The annual report, of which we give an abstract, stated that the year had been a busy one; 127 meetings were held, being about double the total of the preceding twelve months.

The National Wages and Conditions Council.—The most important event has been the launching of this Council and the starting of machinery to govern wages and conditions on a national basis covering the whole of Great Britain. The fact that there were numerous notices pending which had to be taken over and dealt with by the new body added to the difficulties of the situation. Happily, the major part of them has been successfully got over, and the decisions have been loyally complied with. The net result was that as from September 1 there was a total reduction of craftsmen's wages of 3½d. per hour, with a further reduction of labourers' wages in the "A" rated towns of 2d. per hour, with lesser reductions in some of the lower-graded towns, the general effect of the reductions in the case of the labourers being to bring their wage rate to 75 per cent. of the craftsmen rate throughout the country. The Council also tried to arrive at a settlement of the 44-hour week, upon the question arising out of the notice pending that the week should be lengthened in summer, but no decision could be reached by negotiation. There have arisen difficulties due to the rapid decline in employment, which has led to men offering themselves for employment at rates of wages below the standards fixed by the Council. The worst case so far occurred in the Border Counties of Scotland, where the employers are not well organised. The position was considered by the Council, and an adjustment effected which it is hoped will restore the situation. Notices were given by various adherent bodies on October 1 for constitutional amendments. The Council's good offices were also invoked in connection with a difference which had arisen in an attempt to negotiate a walking-time rule for the Northern Counties Area. After considerable discussion, certain bases for agreement were recommended by the Council, and will, it is hoped, enable the local parties to reach agreement.

The Building Code.—Second only in importance to the subject just dealt with are the negotiations which have taken place between the Federation and the bodies representing the architects and surveyors. The result, so far, is that the whole of the bodies concerned are joining in an application to the Government to appoint an independent Chairman, who, with two assessors, one an architect and the other a builder, are to constitute a Tribunal in connection with which a Joint Committee will be set up, charged with the duty of drawing up a building code for national use. Where negotiations in Committee fail to arrive at agreement, the points of difference are to be decided by the Tribunal. This machinery should, within a reasonable time, produce a code which will be generally satisfactory for both private and public work, and its creation under such auspices is an event of importance to all concerned.

The Standard Method of Measurement.—The Joint Committee representing the Federation and the Quantity Surveyors, which has been engaged since April 1919 on the task of compiling and publishing a standard method of measurement, is now within sight of the end of its labours. Early in 1922, therefore, its report may be expected to be issued.

An Important National Development.—The establishing of the national settlement of wages and conditions under the Wages and Conditions Council has made it apparent to our Federation and to the Operatives' Federation that local differences likely to develop into national disputes and local actions, causing withdrawals of labour or lock-outs, must be prevented, and both Federations

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have given directions to their local bodies to that end. That action would not, however, suffice in itself if the national bodies did not themselves undertake the adjustment of local troubles. Where these can be best solved by further national agreements such a course is clearly indicated. Thus, on the question of imported joinery, which has frequently in the past led to friction and threatened or actual withdrawals of labour, a national agreement has been made, as already reported, which should prevent the recurrence of that kind of friction. All this work, which is very important, involves much time, trouble, and diplomatic tact on the part of the national representatives on both sides, notwithstanding which it is eminently desirable that it should be extended rather than curtailed. There are other difficult questions outstanding, such as the 44-hour week and the dilution questions, which need solving.

The Industrial Council.—The actions of this body have not given satisfaction, and careful consideration has been given to the causes. The result is that the Council has authorised its Administrative Committee to receive and consider suggestions for improving the constitution. A Committee is sitting upon the matter.

Relations with Branch Trade Organisations.—It is evident that the tendency of both the National Federation and that of the operatives is in the direction of organisation by industry rather than by crafts, for the simple reason that the former produces a more homogeneous and effective organisation than the latter can ever do. The growing necessity for a national adjustment of causes of friction which has resulted from the formation of the National Wages and Conditions Council is a striking evidence of that tendency. It is unfortunate that at present the branch trade organisations do not appear to appreciate these facts. The Federation has definitely decided that it must adhere steadfastly to the principle of organisation by industry with all its consequences.

The National Scheme of Conciliation.—As mentioned in the half-yearly report, a revised and simplified scheme of conciliation mainly for the settlement of disputes has been submitted for ratification, and has been sufficiently supported to justify the scheme being launched early in the new year.

Negotiations with the Master Plumbers.—The Institute of Plumbers having applied for admission to the National Wages and Conditions Council, negotiations have taken place with a view to their putting themselves in order by getting rid of the extra penny an hour which they have been paying in certain localities to their operatives. This involved a conference with the other side, and now the operative plumbers are considering whether they, too, will come into the Council. The negotiations are as yet incomplete, but they aim at bringing both sides of the plumbing trade into harmony with the other crafts in the matter of wages.

Discussion.

Mr. W. H. Nicholls, of Gloucester, junior Vice-President, said the time had come when the forty-four hours must end. Large quantities of work were being taken from them because of these restricted hours. "We should," the speaker said, "no longer allow the operatives to stipulate the hours that should be worked. We are the only industry to-day that can exist under the forty-four hours a week, and the time has come for a more reasonable number of hours to be formulated."

Mr. Stephen Easten, of Newcastle-on-Tyne, entirely disagreed. He said that the forty-four hours had not proved the fiasco to the building trade that had been suggested. It was unfair to compare the conditions of the present time with normal conditions, to which they must return sooner or later. To extend the hours at a time when there was so much all-round unemployment would be disastrous, and would create hostile public opinion.

Mr. T. Howarth, of Rochdale, said no one wanted to go back to the slavery of the old days, but it was wrong for a man to be able to leave his work and go to meet his child coming from school and take it home with him. There must be more hours worked, so that the community might get a right and proper return for their expenditure. They needed 46½ hours.

Mr. S. F. Johnson said that at Southend they had been working fifty and fifty-four hours a week, and sometimes sixty hours in the summer. The honest working man who wanted to do his duty to his wife and children knew that he must work more than forty-four hours a week.

Mr. R. B. Chessum, of London, said he believed that if a ballot of the men could be taken in such a manner as to be truly representative of their opinion there would be a vast majority—even 95 per cent.—in favour of extended hours. So far as London was concerned they had given their views that the hours should be 49½ hours in the summer, and 44 and 41½ at different times in the winter.

A resolution was carried instructing the representatives on the Wages and Conditions Council to press for a longer working week, by negotiation if possible, but without yielding in the slightest the position of freedom of action held at present by the National Federation.

Mr. John Good, of Messrs. J. and P. Good, Limited, builders and contractors, 55 Great Brunswick Street, Dublin, was elected President of the Federation. Mr. Good, in returning thanks, said that he was the first Irishman to hold that office. It was a compliment to his own city of Dublin. Many changes had taken place in Ireland in the last few years, and, while it was true that the legislative union which had existed between Ireland and this country for so long now no longer existed, the friendship between the two countries remained. This honour would be appreciated in Ireland, and would perhaps do much to cement the friendship of the two peoples.

A letter was received from the Dublin Building Trades Association inviting the Federation to hold its next half yearly meeting in Dublin.

Mr. W. M. Thompson, President of the Dublin Association, speaking in support of the invitation, said that the members might be assured of the most cordial welcome. The election of Mr. Good would be felt as an honour to the City of Dublin, where he was held in the highest repute, not only by builders, but by every merchant and employer, and every professional man in the city.

Mr. W. H. Nicholls, the senior Vice-President, in moving that the invitation be accepted, said that they would look forward to enjoying Irish hospitality. He felt that it would be one of the links which would draw the two nations closer together.

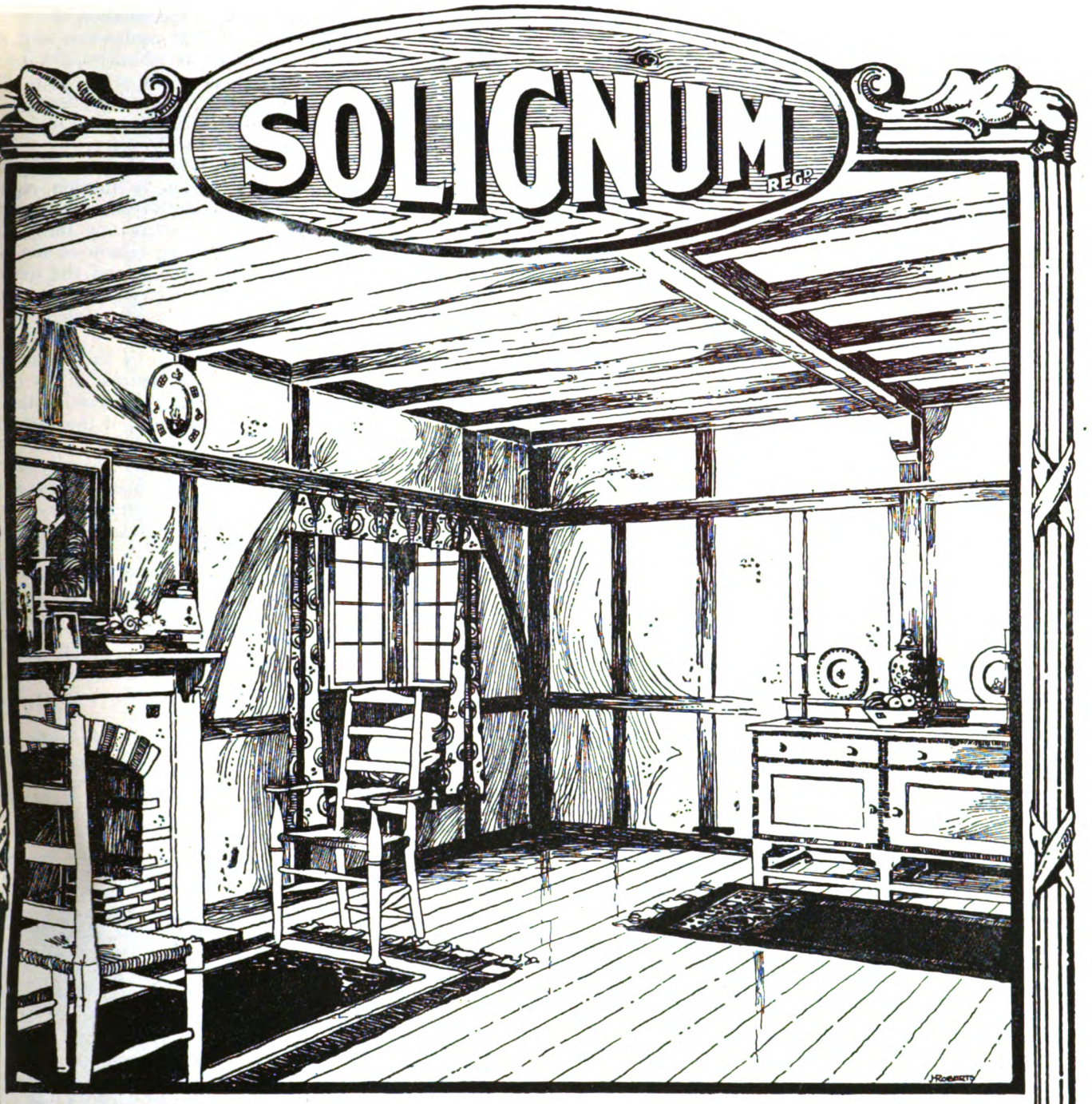
The invitation was cordially accepted.

With reference to statements which have recently appeared in the Press, the Imperial War Graves Commission announce that all the headstones which they are erecting or have erected on war graves in France and Belgium are made in England, Scotland, Ireland, or Wales. There is not the slightest foundation for the suggestion that any of the headstones erected by the Commission are of German make or material.

At a meeting of the Council of the Society of Architects held on January 26, 1922, the following resolution took precedence of all other business: "That the Council of the Society of Architects deplore the death of Mr. Ernest Newton, and desire to express their sense of the loss occasioned thereby to Art in general and to the art of Architecture in particular, and also their appreciation of his personal and professional qualities, and his invaluable service to Architecture and to the community."

A number of architects who are old Cambridge men have just formed a Club with a view to helping, wherever possible, the work of the Cambridge School of Architecture. As a first step they have agreed to double the donation of £50 given this year by the R.I.B.A. to the funds of the school, and they propose in future to meet once a year, either in Cambridge or London, to establish relations with the staff of the school and to keep in touch with its work generally. Mr. Maurice E. Webb, F.R.I.B.A., has been elected chairman of the club, and Mr. J. Alan Slater, A.R.I.B.A., hon. secretary and treasurer.

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Birmingham Architectural Association.

The seventh general meeting of the Birmingham Architectural Association was held at the Society of Artists Rooms, Birmingham, on Friday, January 27, when Mr. W. Gurney Benham, F.S.Antiq., gave an illustrated lecture on "Heraldry in Connection with Architecture."

Mr. Gurney Benham claimed that, though there was a science of heraldry quite interesting to the historian and the antiquary, heraldry was also an art, and that its artistic side was worthy of more attention than it received. Architecture had been rightly called the mother of all arts, but heraldry had been a neglected daughter. Two things had set people against her, her bad language and the fact that she too often appeared in unattractive attire There were unnecessary technical terms, but the best modern heralds disregarded much of the old jargon. The rules of heraldry were fairly easy to master, but the art presented more difficulty, and it was largely owing to the modern neglect of the artistic capabilities of heraldry that it was not more used. It could be made delightful to the eye and the mind, and could be made to give expression and language to buildings. Mr. Benham illustrated this by a series of lantern views showing examples of heraldry as treated by such great artists as Albert Durer and others who had preceded and followed him. He also displayed what he described as a lifelike and recognisable portrait of Sir John de Birmingham, who was born in the thirteenth century, mentioning that his armorial "coat" formed part of the Birmingham city arms. His armorial bearings, shown partly by the crest on his helmet, and his surcoat, together with the heraldic achievement repeated on his horse's trappings, made him easily recognisable on the field or in the tournament.

Examples were given of the humour of heraldry and its use in expressing and commemorating history, national and local. A picture of the Birmingham city arms was shown, and the lecturer urged his hearers to give the city armorials more artistic and effective treatment than they had received. He denounced the representation of the working smith, one of the "supporters" of the arms as a nineteenth century smith in corduroy trousers tied up with string at the knees. Birmingham was famous for its smiths in 1538, and the smith in the arms should be a dignified figure in medieval attire. Mr. Benham gave a striking example of the wealth of meaning which lies unsuspected in many coats of arms by expounding the ancient borough arms of Colchester, dating back to the early years of the fifteenth century. This simple device, as he showed, combined no less than five medieval legends of great interest.

In conclusion he urged upon architects the advisability of studying heraldry and mastering its rules and principles. If they would become heralds they would promptly realise the great freedom and licence which were part of heraldry, and the artistic opportunities which it offered.

Institute of Scottish Architects.

A meeting of the Council of the Institute of Scottish Architects was held in Edinburgh on the 26th ult., Mr. A. N. Paterson, F.R.I.B.A., Glasgow, the President, in the chair. Before the commencement of the business proceedings the President referred to the death of Mr. Oldrieve, and it was decided to minute a resolution expressing the regret of the Institute on his death. Notice was also taken of the death of Mr. Ernest Newton, R.A., a former President of the Royal Institute of British Architects.

A further report was tabled regarding the application for a Royal Charter, which it is expected will shortly come before the Privy Council.

Applications for membership to the Institute made at last meeting were passed in the case of four associates, and new applications from seven associates and four students were read over.

Following a meeting in London of the committee of the Royal Institute dealing with the question of housing fees to be shortly dealt with in conference with the Ministry of Health, a report was tabled by Mr. Lochhead, the Institute representative at that meeting, as to the points raised there by him, especially affecting the position in Scotland. The London committee undertook that they would be laid before the Ministry.

Communications from the Royal Institute of British Architects and the Society of Architects, London, regarding the unwarranted and misleading statements recently made by Sir Charles Ruthen, attributing the partial failure of the Government's housing scheme to the attitude adopted by architects, were read, and the Council unanimously agreed to record their concurrence with the repudiation of these statements already minuted by the governing bodies of both these societies.

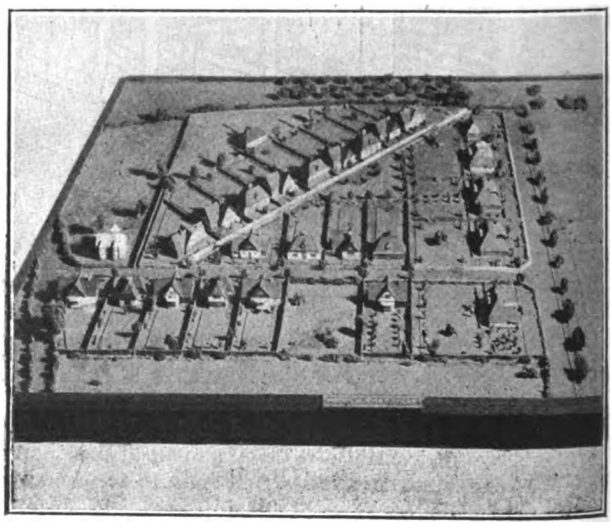
A further report was submitted by the Committee in charge of the proposed quarterly journal of the Institute, and instructions were given to proceed with the preliminary arrangements for the issue of the first part at an early date.

With regard to the institution of a University degree in architecture, a report was tabled concerning the steps taken towards that end, and the Committee were empowered to take such further steps as might be necessary to bring the matter to a definite issue.

The Golf Links Estate, Flackwell Heath, Bucks.

This estate is being laid out by Mr. W. S. Grice, A.R.I.B.A., 9 Gray's Inn Square, and stands high on the spur of the Chilterns, adjoining the Flackwell Heath Golf Links, and is situated almost midway between High Wycombe, Marlow, and Bourne End.

The estate, although being close to the river, has none of the disadvantages of mist and dampness usually associated with the riverside, while the journey from London is only about fifty minutes, and Loudwater Station on the G.W.R. is close to the estate.



GOLF LINKS ESTATE, FLACKWELL HEATH.
W. S. GRICE, A.R.I.B.A., Architect.

There is a right-of-way diagonally across the estate, and this has been kept in laying out the roads. The houses, which are being designed by Mr. Grice, vary in accommodation and design, and stand on large plots, leaving room for garages, etc. At one corner there will be a space reserved for tennis courts and a pavilion.

Local materials will be used, and when the estate is complete it should prove a charming spot as a residence for people who enjoy country life where golfing and boating can be easily obtained.

The illustration given is from a model executed by Mr. John B. Thorp.

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The "Glow-worm" Hot-water Boiler.

The boiler which we illustrate herewith possesses several original and unique features. It is claimed to be the most successful substitute for the kitchen-range boiler. The "Glow-worm" is manufactured by Messrs. O. Bruster & De Launoit, 4 Lloyds Avenue, E.C. 3, the owners of the well-known "Baseco" boiler and radiators. It is a British invention, and is manufactured in Great Britain. The design and trademark are registered, and a patent has been applied for.

One cannot help being struck with the many advantages offered in the use of this boiler. The "Glow-worm," with its bright and polished hob, can be fixed in the kitchen or scullery without being in any way unsightly. In addition to giving an abundant supply of hot water for the average home, the hob forms a really effective hot plate for boiling kettles and many simple cooking operations. The waterways have been specially constructed, and form a baffle. The



essential heat gases are used for heating the water, and are then directed so that they traverse the hob. Waste heat gases are therefore reduced to a minimum. When the fire door is dropped all the benefits of an open fire are obtained, and the door then serves as a trivet. When closed the fire is visible through a mica window. The "Glow-worm" was the first boiler of this type designed to offer these facilities to the user. Fitted with a hopper, the boiler will burn all night without attention. It is sold at a competitive price, and the consumption of fuel is very low. A leaflet with full particulars will be sent to any interested reader, and liberal discounts will be given upon application to the trade.

General.

The annual dinner of the Society of Architects, which had been fixed for February 22, 1922, has been postponed *sine die*.

It is proposed to erect a Nurses' Hostel in connection with the Peterborough and District New Hospital at an outlay of about £10,500.

Plans have been approved and sanctioned for the erection of 34 houses at Stainforth, near Doncaster, for the Hatfield Building Society. The architects are Messrs. F. Hopkinson & Co., of Worksop.

Mr. A. N. Hawtrey, A.M.I.C.E., deputy engineer and surveyor of St. Pancras Borough Council, is retiring after forty-one years' service. He was offered the position of borough engineer about two years ago, but decided not to accept it on account of his age.

Messrs. J. Hodson & Son, Ltd., Nottingham and London, have acquired a two-acre site on the banks of the River Usk, at Newport, for the erection of extensive new works for the manufacture of concrete building blocks.

As will be seen by reference to our front page, the Builders' Benevolent Institution will hold an election on April 25 of pensioners. Candidates must not be under fifty-five years of age, and must have been in business within twelve miles' radius of Charing Cross.

The Durham County Council have adopted a preliminary programme of school building submitted by the Education Committee, which included the provision of a secondary school at Houghton-le-Spring, at a total cost of £45,500, and elementary schools at various places ranging in cost from £8,750 to £45,000.

The Sulgrave Institution of Great Britain announces that its hon. treasurer, Sir Charles Wakefield, has commissioned Mr. Reid Dick, A.R.A., to execute a bust of the late Lord Bryce, to be presented to the American people as a memorial. A cable has been sent to the President of the United States offering this gift to Washington.

The Hull Corporation Works Committee are recommending the provision of underground lavatories in the City Square at an estimated cost of £20,000, inclusive of the cost of removing the Queen Victoria memorial statue from its present position and its re-erection in the centre of the platform above the lavatories.

The contract for the supply of pumping machinery for London's new reservoir at Littleton—between Staines and Shepperton—has been secured by Worthington Simpson, Ltd., Kingsway, W.C. It is understood that the price is £56,865. When completed the reservoir will hold 6,500,000,000 gallons, and its surface will cover 800 acres.

The Estate and Property Committee of Newcastle Corporation met last week under the chairmanship of Councillor Stephen Easten, and discussed the question of rebuilding the Northumberland Baths. It was decided to prepare a report, in which authority will be sought to prepare a scheme for rebuilding the baths and erecting a concert hall on a portion of the land adjoining.

The Secretary of the Society of Architects last week made the following announcement:—Following the resolution unanimously passed at a special meeting of the Council of the Society of Architects on January 18 dissociating themselves from the views expressed by Sir Charles Ruthen (the President) in his paper on "The Architect and the State," and other resolutions unanimously passed at the same meeting, Sir Charles Ruthen attended at the meeting of the Council this evening and tendered his resignation as President, which was accepted by the Council.

Members of the various sections of the welding industry, at an inaugural meeting held on January 26 at the Holborn Restaurant, adopted the proposal to form a new Welding Society embracing all systems of welding. A strong committee, representing the different interests, was elected to draft the constitution, with a view to registration after same has been approved by a general meeting, which will be called at an early date. The name agreed upon is The Institution of Welding Engineers, and all interested in the welding and allied industries will be eligible for membership. The offices (pro tem.) are at 30 Red Lion Square, London, W.C. 1.

Statistics of compensation and proceedings for 1920 under the Workmen's Compensation Act and the Employers' Liability Act, which were issued last week, show an increase of more than £1,350,000 in payments, and a decrease in litigation. During 1920 there were 3,531 fatal accidents and 381,986 non-fatal, making a total of 385,517, compared with 368,469 in the previous year. Payments during the year under review for fatal accidents totalled £755,657, and for non-fatal accidents £5,222,352, a total of £5,978,009. The total payments for 1919 were £4,616,723. In 1920 the average payment in case of death was £214, and in case of disablement £13 14s. In 1914 the corresponding amounts were £161 and £6 7s. It is stated that the big increase is no doubt mainly due to the operation of the Workmen's Compensation (War Addition) Act, 1919.

Trade Notes.

The British Electrical Development Association, Inc., have altered their address to 15 Savoy Street, Strand, W.C. 2 (Building of the Institution of Electrical Engineers). The telegraphic address is "Electreda, Rand, London," and their telephone number is Regent 4570.

Messrs. Bryce, White & Co., of 28 Basinghall Street and 28 Wharf Road, inform us that as from January 1, 1922, their business has been formed into a private limited liability company under the style of Bryce, White & Co., Ltd. This is being done for family reasons, and there will be no change in the present management and personnel of the business. The directors will be Mr. Joseph White (Governing), Mr. R. J. A. White, and Mr. L. H. A. White.

Messrs. W. J. Furse & Co., Ltd., electrical engineers and contractors, Traffic Street, Nottingham, have secured the contract for the supply and installation of lightning-conductor equipment for the New County Hall for the London County Council, which is one of the largest installations fixed to any public building. This firm, which has been established for nearly half a century, have previously been called in as experts in this class of work, especially in connection with the various equipments on H.M. Munition Factories, such as Gretna, Queen's Ferry, &c., besides other important public buildings, including the Law Courts, London.

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"The Commercial Ideal."

MR. H. B. CRESSWELL read a very pungent and opportune paper on the above subject at the Architectural Association, with the greater part of which we are in full agreement. We never found much consolation in the discovery made by Mr. Selfridge that architecture paid the shopkeeper, because what he had in mind was obviously not so much architecture—but display—to which he thought architecture might lend itself.

It is not possible in a modern State to re-impose sumptuary laws, but it should be possible if we have grown in civilisation, as some claim, to reimpose something approximating to sumptuary regulations in architecture by the weight and force of public opinion. It is true that public opinion must find articulate expression, and such expression should be sought by means of our urban and local system of self-government, defined by such alterations in building by-laws as may be necessary to effect the purpose.

There is not a street in a town in the country which is not disfigured by wholly unnecessary advertisements which serve no useful purpose, but which shopkeepers are bound to employ in self-defence so long as their rivals are allowed to use objectionable means. There is not a shopkeeper in the country who really needs his name displayed, except on the fascia-board over his shop. There is not a shopkeeper who could not do his business equally well were he compelled by law to provide apparent support for the superstructure over his shop, and there is not an architect in the country who can satisfactorily design a street façade which has apparently no adequate supports on which to rest. These are plain facts which should be insisted on by all the weight of architectural opinion, which should carry out a crusade to obtain the support of enlightened public opinion throughout the country with a view to stopping the rot which, without adding one iota to the volume of trade carried on by this or any other country, is fast vulgarising the aspect of the world.

The Crown authorities in Regent Street and elsewhere, and the controlling authorities of many private estates, lay down conditions which make it impossible for anyone to build except in Portland stone; but it would be more to the point if they insisted on an end being put to a senseless and vulgar desire to obtain display by a sacrifice of the essentials of architecture. The shop which masquerades as a public building is an offence to good taste; for retail trading, however well and efficiently carried out, is not a high and ennobling occupation of importance, but simply a convenience to the public, and one that can be efficiently carried out without vulgar and senseless display. We agree with Mr. Cresswell that materials such as marble and mahogany have been so vulgarised by association as to lose much of their value and beauty as building materials. What we are fast arriving at is a convention that every frontage in a street shall be considered as an advertisement for some business or other, decked out with columns and ornamental stonework, in much the same way as some factory-girls spend all the money they can obtain in dressing themselves up, without regard to appropriateness or utility. We condemn the latter as an evidence of want of education and bad taste, but we are too often lenient in dealing with the former, and even more objectionable, evidence of vulgarity. A tradesman's shop should not be a building which would be appropriate for a public office of importance, and our instincts of what is fitting should make it impossible for the private trader to erect towers or other features simply to advertise the process of intensive selling of commonplace articles carried on underneath.

If commercial buildings are to be the subject of architectural display, it is rather those devoted to the higher and worthier objects of manufacture and production which should be ennobled than those used for purposes of selling alone, and it is, unfortunately, these latter which seem signalled out for a wholly unnecessary and most ostentatious display.

With regard to Mr. Cresswell's criticisms on the "Commercial Ideal," we would somewhat modify the terms used. It is reasonable and proper for all of us to wish to make money, but the men whose sole object is confined to the acquisition of wealth are usually deficient in other ways. We should be inclined to define what should be the average man's ambition as to make a fair commercial success by doing work in which he feels pleasure and gratification. If we wish to gratify our tastes and inclinations alone, we must have private means; if we only value work for what it brings us, we shall be warped and one-sided; and neither of the two classes of men so described can be held to be assets to the State of which they form a part. But the man who is wanted by his fellows and does good work for them may reasonably hope to make a reasonable commercial success; while the fact that in doing so he is following his bent will add to, and not subtract from, the value of his work from the point of view of the community of which he forms a part. In other words, we do not feel so much disposed to condemn the "Commercial Ideal" as to insist on the fact that it has been strained out of recognition by certain sections of the modern world whose mental balance has become distorted and one-sided. The modern shop—in referring to which we should certainly include many of the great American stores, together with buildings like Mr. Selfridge's shop and Messrs. Warings—does seem to us to be too pretentious and self-important for its purpose, and seems to fall under the heading of advertisement rather than that of reasonable design for a restricted commercial purpose.

To do what the world wants, to do it well, and to enjoy doing it without losing our sense of proportions and values, may be defined as better for mankind than either altruism or a restricted Commercial Ideal.

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Illustrations.

WATFORD HOUSING SCHEME: HAREBREAKS ESTATE. E. Vincent Harris, Consulting Architect
BUNGALOW, SCHOOL LANE, GERRARDS CROSS. Wills and Kaula, Architects.
METROPOLITAN WATER BOARD OFFICES, ROSEBERY AVENUE. H. Austen Hall, Architect.

Notes and Comments.

The R.I.B.A.—Registration and Unification.

Our views on the above matters are clear. We do not believe there is the smallest chance of obtaining Registration in any form which would be of service to the profession. We believe that the great majority of the profession are nevertheless anxious that a measure of Registration should be proceeded with, and it is no use fighting against the wishes of a clear majority. It is also clear to us that no measure of Registration will have any chance of adoption unless it is promoted by a body which represents every practising architect. The inclusion of every practising architect in the R.I.B.A. without adequate examination is bound to lower its standard for some time, and the insistence of an adequate examination will keep many men out whose inclusion is probably essential to the adoption of any measure of Registration by Parliament. We are, therefore, in a dilemma, and are for that reason disinclined to either oppose or support the measures proposed by the R.I.B.A's Committee.

Mr. Aldridge and Sir Charles Ruthen.

We have had a communication from the Housing and Town Planning Council consisting of a long letter from Mr. Aldridge to Sir Charles, and an answer thereto in which quotations from the unfortunate paper are made with a view to justifying them. Mr. Aldridge is acting as the "dove of peace," but we think he is wasting time, as Sir Charles Ruthen's speech and his explanations of its meaning are alike unsatisfactory to all of us. In colloquial English it is not good enough, for the breach between Sir Charles and his former colleagues is impassable. As an architect his opinions do not carry weight; as a politician he seems to us to fail in a primary essential, for he has affronted his audience, a thing which a skilful politician carefully avoids doing. We should be greatly interested to know what Sir Alfred Mond thinks of what Sir Charles said, for we should doubt whether the objects of his department have been advanced by the methods employed. Anyhow, we have heard Mr. Clynes admit that after he had seen the results of the Government's methods he had come to the conclusion that private enterprise must be looked to if the housing requirements of the country were to be met; and if a Labour leader has come to this conclusion we do not believe that it will be possible for Sir Charles to effect a change of conviction by the methods he has chosen to employ.

The Rating of Land Values.

The United Committee for the Taxation of Land Values and the English League for the Taxation of Land Values have issued a joint appeal to the citizens of London in view of the coming London County Council election. In this appeal they argue that as the selling value of vacant land in London depends on the municipal services which exist round it, such sites should be rated on the real value of the land and not as at present at nominal rates. Either this should be, they say, or else, when such vacant sites are taken over for public purposes, the price should be assessed at a low one, having relation to the rates paid by the owners. The adoption of the policy advocated would, it is claimed, relieve the ratepayers' burden, and put an end to the practice of holding such sites out of the market until a certain price had been obtained, and the policy applied to vacant houses would force their owners to utilise them instead of preserving them for sale and so increasing congestion. There is a good deal in these contentions, but more in the system of a local income tax advocated by Mr. James Gibbs, of Sheffield, by the adoption of which owners of property would not be rated on the area of such property or the cost of buildings erected upon it, but on the income derived by the owner from them. This would at once relieve the fears of owners of property that by improving it or building on it they would subject themselves to demands for greater rates, and it appears to us to be a measure of equity which would help both building owners and the general community. We commend Mr. Gibbs's proposals to the consideration of the societies mentioned, as we hold his proposals to be sounder than their own.

Mr. Clutton Brock on Beauty.

Mr. Clutton Brock gave an interesting paper at the Church House on "Ugliness in relation to Disease," in the course of which he discussed women's dress. There are two classes of women, he held—those who ignore dress and those who merely follow fidgety fashion. The first he would put into uniform. The second he would teach that dress can be beautiful only when it expresses vitality, character, and joy of life. A new suit makes even man (who has evolved for himself a sort of uniform) feel more strong and vigorous. A new dress chosen to express something beautiful—figety fashion never thinks of that—must have a great tonic effect on the mental health of the wearer, and that in turn had its effect on physical health.

He turned to the influence of beauty in architecture. Tired English folk, he said, have to go to Rome or some like city for rest and solace simply because they cannot find them in their own cities, filled with the meaningless variegations of modern architecture. Beauty in architecture all means health. Mr. Brock instanced a piece of Italian architecture the sight of which vitalises him so much that he "wants to jump over the moon."

"Who wants to jump over anything," he asked, "after looking at Piccadilly Circus? Our Queen Anne houses (the Church House is near Queen Anne Square) externally express the interior comforts of home, rest, security, peace. The modern street tires one because it expresses nothing except an attempt to pretend it is what it is not. No wonder tired men rush away to Rome!"

We agree with Mr. Brock, for, while we have often seen the moon shining when in Piccadilly Circus, we have never attempted to take a flying leap over it, but on next visiting Italy we shall evidently have to restrain ourselves very rigidly.

The London University Site Question.

Captain Swinton perseveres in his endeavour to get the question of the London University site reopened, his contention being that as King's College will not move unless they obtain a site of six acres, and as the whole of the Bloomsbury site only amounts to eight and a-half acres, the two and a-half acres which would remain is clearly insufficient for all other uses. It is further urged by Captain Swinton that one hundred acres in Holland Park would only cost as much as eight and a-half acres at Bloomsbury. Eventually the London County Council decided to send another recommendation to the Board of Education and the Senate of the University, urging reconsideration, which recommendation received unanimous support. The reasons of the Government's desire to press the acceptance of the Bloomsbury site on the University have never been made clear, but it seems very doubtful whether anything can now be done, as it would involve the reopening of the whole controversy after the Bloomsbury site has been definitely selected. We have always taken it that its proximity to University College must have been a great and perhaps determining element in the decision arrived at.

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London Art Galleries.

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A new etcher has come before the public at the Greatorex Galleries in a very charming little exhibition of "drypoints and drawings," by A. Brantigam Simpson, R.I., shown under the title of "Fancies Old and New." As a draughtsman Mr. Simpson's work is fanciful and delicate, with a thorough knowledge of the figure. He is perhaps at his best in pure line, though the soft rich quality of some of his charcoal drawings here has much to recommend it. In his etchings here the artist has gone back for the subject of his "fancies" to the old world of mythology, to the loves of the Centaurs, of the wood nymphs and goat-legged satyrs, which the Venetian master Ettore Tito, and long before him Peter Paul Rubens loved to treat: like the Augustan poet he has lingered in the forests and seen Bacchus with his train among the remote rocks . . .

"Nymphasque discentes, et aures
Capripedum Satyrorum acutas."

Such imaginings as these form the theme of "Faunesse," "Traquée," "The Embrace," "The Quarry," and "Huntresses," and when he leaves these subjects it is to turn to the eighteenth century in "Fête Galante," "Paint and Powder," and other etchings. Two of his most attractive figure subjects, in which pure line is used with knowledge and real mastery, are the two recumbent figures of girls in drypoint called "Flotsam" and "Jetsam." He gets here and elsewhere a wonderful quality of fleshiness with a single clean line, while in such etchings as "The Embrace" and "Huntresses" he finds rich strong blacks, though perhaps on this side of the etcher's craft he has yet something to learn. There are some clever little statuettes shown here, suggesting an improvisation rather than a finished study, among which the "Captive," in bronze, is perhaps the best.

At the Alpine Club Gallery from February 2 to 14 an exhibition of Mountain Landscapes by Hilda Hechle, Katharine Clausen, and Clement du Pontet seems especially appropriate to this Gallery. Miss Hechle has gone for her subjects to North Wales and the high peaks of Switzerland and Norway, and is successful in her "Misty Evening from Snowdon Summit," and the effect of light upon the snowfields shadowed by passing clouds in "The Swiss Italian Rampart, Mont Brulé." In her "Morning Glow on the Matterhorn" she seems to unduly force the vivid reds and green, and to fail in suggesting atmosphere; and this impression is only strengthened by turning to M. du Pontet's admirable treatment of a similar effect in the rose-toned peaks of "The King Awakes" in this same room. But there is strong drawing in this work of Miss Hechle, and she is especially good in rock form, as we see in her "Icecliffs on the Marjelen-See" and "Basaltic Rocks on Spur of Glyder Fawr." Some of her work shown here was done at very high altitudes: notably the study of sunrise from the Cabane de Bertol, which I believe to be some eleven thousand feet high. One of the most successful paintings here is "The Stream in Spate," with its effective contrast of the intensely green fields in the foregrounds, and the dark-blue cliffs, hid in storm, behind.

Miss Katharine Clausen, who I believe to be a daughter of G. Clausen, R.A., was Miss Hechle's companion in these mountain paintings, and has herself some thirty mountain landscapes here, of which I found "Snowdon from Glyder Fawr" and "Clouds over Llyweld" among the best; but of greater interest here is the work of Clement du Pontet, to which I have alluded. M. du Pontet makes effective use in such studies as "On the Eiger Precipice," "Schwarzmonch and Gspaltenhorn," "Aiguille Verte," and "Solitude (Blumlisalp)," of the contrast of well-drawn rocks or fir-trees in the foreground with the "misty mountain tops," snowcovered and full of mystery and reflected light, behind. Most successful is the "The King Wakes," a peak touched and warmed into rose by the rising sun, and, again, "The Morning Kiss," showing the effect of sunrise on the great snow-clad mass of the Jungfrau.

The Royal Society of Painter-Etchers and Engravers opened their fortieth annual exhibition on Friday last at 5A Pall Mall East. While reserving a more detailed notice for next week's notes, I may mention here the etchings of Sir Frank Short ("Morning in Chichester Harbour"), of Mr. Martin Hardie ("Street in Sémur"), of Miss Anna Airy, and Miss Katherine Cameron in her studies of bee and butterfly life. Mr. Blampied's vigorous work is not to be overlooked.

Those of my readers who can find time should visit the Japanese lacquer now on view at the Victoria and Albert Museum in Room 41. Some of the best Japanese lacquer recently added to our national collection comes from the family of the late Michael Tomkinson of Kidderminster, one of my oldest friends, whose superb collection of Japanese art of every kind I have known and had the privilege of studying for many years. The three cabinets from this collection, shown beside two from that of the late Mr. W. C. Alexander, are fine examples of those used in the incense ceremony. I hope to return again to this lacquer art—which seems to be now a dying art—and to these fine examples. I will only mention to-day a yet later gift made by Lady Macdonald to the same Museum in memory of the late Sir Claude Macdonald, who was our Minister at Peking, consisting of five vessels for temple use.

On Saturday, February 11, there will be opened at the Leicester Galleries an exhibition of paintings by William Shackleton, an artist of considerable imaginative power, some of whose work has been recently reproduced in "The Studio." On the same date in these Galleries will be opened the twelfth exhibition of the Sennefelder Club for the advancement of artistic lithography. Mr. Frank Brangwyn is now President of this Club, which has done such good work already for this side of modern art: the present exhibition, besides the work of members, will contain lithographs by eminent foreign artists, including Daumier, Fantin-Latour, Forain, Steinlen, Munch, Vuillard, and Toulouse Lautrec.

Coming exhibitions this spring promise to be of considerable interest. Among these I understand that the Trustees of the National Gallery at Millbank are arranging an exhibition of that fine artist John Sell Cotman, for three months, to open in April. This exhibition will include Cotman's paintings in oil, water-colour, and black and white, with some few paintings by his sons, John Joseph and Miles Edmund Cotman, and other related painters of the Norwich School. At the same time and during the same period the Trustees of the British Museum have arranged to exhibit to the public the Cotman drawings in their own collection.

The exhibitions of the Burlington Fine Arts Club are always of considerable critical interest, and this applies very particularly to the exhibition which it is proposed to hold in the Club Gallery during the months of May, June, and July next, of pictures and drawings by deceased artists of the French School of the last hundred years, together with a few pieces of sculpture. The exhibition will be opened early in May.

At the Grosvenor Galleries on Wednesday, February 8, there were shown drawings by Muirhead Bone and A. St. John Partridge, with paintings, drawings and etchings by John Wheatley. These were opened to the public on the day following.

S. B.

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Unification and Registration.

A brief meeting of the R.I.B.A. Unification and Registration Committee was held at 4 p.m. on Tuesday last as a preliminary to a special general meeting of the Royal Institute, which had been called at the request of the R.I.B.A. Defence League. Mr. Paul Waterhouse, President, was in the chair.

Mr. Arthur Keen, Hon. Secretary, gave a concise account of the history of the present series of attempts to bring about unification, dating back to before the war. Immediately after the war an executive working committee was set up to examine all schemes. These were narrowed down to two, which were called Scheme A and Scheme B. The various sections of the Institute were then consulted as to their views. At a meeting held in May of last year Scheme A was adopted for recommendation to the general body. In view of the meeting to be held later, he suggested that the Committee should reaffirm the resolution then taken, so he proposed:—

"That this meeting of the Unification and Registration Committee reaffirms its resolution of May 12, 1921, that the principle of Scheme A, namely, the bringing of all architects of the United Kingdom into membership of the R.I.B.A., be adopted as the basis for unification."

Mr. Sydney Perks protested against the calling of a meeting for the purpose of reaffirming a resolution that had been passed, referred to the Council, and acted upon.

Mr. J. E. Yerbury pleaded for the necessity of reaffirming the resolution in view of the urgent need for unification.

Mr. H. T. Buckland also thought it was most essential to reaffirm the resolution, in view of the fact that certain members of the Committee had persistently tried to misinterpret the action taken.

Major Corlette said that, though certain members had pleaded in the Press for *esprit de corps*, they showed by their obstruction tactics only too little *esprit de corps* themselves.

The adoption of Mr. Keen's resolution was seconded by Mr. F. R. Taylor, and carried by thirty votes to one.

At the conclusion of the meeting Mr. Arthur Keen announced that Sir Charles Ruthen had resigned his Vice-Chairmanship of the Unification and Registration Committee as being no longer President of the Society of Architects.

There was a crowded attendance at the subsequent meeting at 5.30 p.m., over which Mr. Paul Waterhouse presided.

The formal notice convening the meeting was as follows:—

Unification and Registration.—**The Council have received a written requisition, signed by the required number of members, asking that a Special General Meeting be called, under Bye-Law 65, to discuss the following motion: "That this meeting is of opinion that the conditions for the Unification of the profession should form part of a Registration Bill, and that the present system of admittance to the Institute, including compulsory examination, should continue in force until a Registration Bill be passed."**

Mr. A. W. S. Cross, in proposing the adoption of the resolution, said he hoped the subject would be brought to a definite issue. There existed a great deal of difference of opinion about it, and the longer it was allowed to lie dormant the more likelihood there seemed of bitter feeling. Outside warfare might bring things from bad to worse. With them that evening were many provincial members, and the meeting would be glad to hear their views. There could be no doubt as to the very strong opposition towards the Council's proposals. He had no hesitation in appealing to the members to try and look upon his resolution as an attempt to reconcile the various interests. In May last the Unification and Registration Committee recommended to the Council four resolutions, which were subsequently accepted. Mr. Keen had since then written some very able and interesting letters to the professional Press on the subject. But these left unshaken a conviction that the words of the Council meant neither more nor less than they said. The Council were offering the general body of outside architects a scheme of entry into the Royal Institute without preliminary examination. That was the logical outcome of their proposal. But many members, on the other hand, believed that if the Institute must be increased, the only way was by means of the examination test. The Council's resolution must be re-drafted, and the catchword "Unification" disappear. A scrutiny of the late Council's proposal suggested that its main object was to absorb the Society of Architects and quack architects. The chances of obtaining statutory powers grew more remote every day. If they failed to obtain Parliamentary sanction for Registration, any sacrifices would be made in vain. The prestige of the Royal Institute would be diminished rather than increased. Let them ask themselves whether the prestige of the Royal Academy would be increased by including in it every painter, sculptor, and architect. The Council were for the time being the trustees of an important society, and it was their duty not to gamble with its future, and not to give their approval to a wrecking proposal.

Mr. George Hubbard, in seconding the resolution, said he wished to make it clear that there was no difference or ill-feeling between the R.I.B.A. Defence League and the Associates' Committee. There could be no mistaking the words of the Council. No suggestion had been made of any test or examination; the Institute was to be thrown open to all architects without any reservation, for the object that it might speak as one man. But would they then have any better chance of obtaining an Act of Parliament by which architects would obtain Registration? None of the Defence League were opposed to Registration. Some few years ago Mr. Cross and himself had attended meetings in the provinces, in Wales, and in Ireland, as a result of which some 1,100 Licentiates were brought into the Institute. Yet it did not bring the profession one inch near getting a Registration Bill through Parliament. The only chance of achieving that was if Registration could be shown to be in the interests of the public. But Parliament had already protected the public by means of by-laws, district surveyors, and sanitary inspectors. It seemed to the Defence League that the Council were going the wrong way to secure Registration. The proper way was first to get the Bill, and then afterwards to make any sacrifices the Institute liked to achieve Unification. Personally, he believed Unification was just as impossible as a Registration Bill. There existed a certain class of man outside the Institute with a good practice, and nothing on earth would get him in by Unification. The Council proposed to open the Institute's door so wide as to include everybody. By so doing they would render its prestige non-existent. Many members would certainly resign from it. The Defence League had received hundreds of letters in favour of their action.

Mr. Arthur Keen then read the resolution of the Unification and Registration Committee passed that afternoon, in which they reaffirmed its resolution of last May, by which the principle of Scheme A, namely, the bringing of all architects of the United Kingdom into membership of the R.I.B.A., was to be adopted as the basis of unification.

The following resolution carried on February 2 at a meeting of the Associates Committee was also read: "That in the opinion of the Associates' Committee, if the resolution on the Agenda paper at the Special General Meeting called for Tuesday next, February 7, is carried, the Unification of the profession will be indefinitely postponed."

The Associates' Committee stated that it had ample evidence that, although there are differences of opinion as to details, the great majority of Associates are in favour of Unification whether or not Registration is immediately obtained. He also submitted resolutions passed last autumn at meetings of Associates held in

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Liverpool, Manchester, and Newcastle, to the effect that Unification was an indispensable pre-requisite to Registration by Act of Parliament.

Mr. H. T. Buckland (Birmingham) said that as one of the members of the original Registration Committee he would like to ask a few questions and then to propose an amendment. The first question was "What would be the effect of Registration?" The reply must be "It would involve the bringing of all architects into membership of the R.I.B.A., or some other kindred association. What possible objection could there be, then, to preparing the way for getting a Bill through? The motion submitted by Mr. Cross altogether overlooked the third resolution passed at the meeting of the Unification and Registration Committee in May of last year, viz., "That the Committee recommend the Royal Institute to draft such alterations to its charter and by-laws as may be necessary to comply with the principle of Scheme A and to confer with the Council of the Society of Architects as to conditions of membership." He thought it very disloyal of Mr. Cross and his friends to have thought fit to promote a campaign directly opposed to that policy. If they disagreed they should have retired from the positions they held on the Council of the Institute. What they had persistently done was to try and misrepresent the objects of the Institute in this matter. The answer to their arguments was in their own resolution. There were no definite proposals as to on what terms outside architects would come into the Institute. He would propose as an amendment that all the words after the first "That" should be omitted and the following put in its place: "That in view of the fact that a Committee which represents all sections of the profession has been appointed to consider and report upon all questions connected with the Unification and Registration of architects, this meeting deprecates the public discussion of various views until the report of the Committee has been presented, and consider that all the suggestions and proposals for carrying out the expressed wishes of the profession should be sent to the Unification Committee for consideration." That amendment had been suggested to him by a Licentiate, and it seemed of exceptional value. If the meeting passed Mr. Cross's resolution they would kill the possibility of Unification so far as the Institute was concerned. They wanted to act as one common body. If those quack architects to whom allusion had been made were such terrible fellows the Institute would be better off if it had them as members and therefore under control.

Mr. Percival M. Fraser protested on a point of order that the amendment proposed by Mr. Buckland was so drastic that it could not be regarded as an amendment at all.

This objection was overruled by the Chairman.

Mr. Herbert A. Welch, speaking in support of the amendment, emphatically deprecated any course which would defer action. The question of registration had been before the profession for a period anterior to his own birth. He begged the meeting not to prejudge the issue before the detailed proposals had been put forward. Mr. Cross had told them the scheme was dormant. But, in fact, it was his own motion which would do that. Much had been said about the lowering of the prestige of the Institute if they brought in the outside men. He could assure them without difficulty that their prestige would go up by leaps and bounds if 75 per cent. of the architects in this country could write R.I.B.A. after their names. The threat that many members would resign seemed to him childish and like a sulky small boy who runs away and refuses to play because he has not got everything exactly as he wants.

Mr. William Woodward supported Mr. Cross's resolution. It had been objected that because Mr. Cross and Mr. Hubbard were on the Council they ought not to have brought forward their proposals. Surely it was from the very fact that they had the interests of the Institute at heart that they had done so. If the proposals of the Council were adopted the result would be, in his opinion, absolutely to lower the status and dignity of the architectural profession. They proposed to bring in all men who called themselves architects without the slightest examination or proof of status. The Council's proposals seemed to him bare, bald, and bold. No indication had been given as to the classification they were going to offer these men on admittance to the general body. Another objection was that it seemed an unfortunate moment to raise this question, for architects were at the moment out of public favour. Once the Registration Bill had been passed, then they could set to work to get all kinds of architects into their ranks.

Mr. Sydney Perks paid a tribute to Mr. Welch's Associates' Committee as doing excellent and difficult work. The Defence League were not stopping it. But they wanted Registration first, and then Unification. The Secretary of the R.I.B.A. had received 170 letters approving the proposals of the League, and not one against. That was the very greatest argument in favour of the resolution. He quarrelled with the assertion of the Associates' Committee that "the great majority of the Associates are in favour of Unification, whether or not Registration is immediately obtained." He challenged them to prove that claim. The Defence League had the support of from 350 to 400 men who were in favour of their proposal and opposed to the Council's scheme. He objected to being told that if those outside were admitted Registration would be obtained. Registration could only be obtained if a sufficiently strong public case was made out. But the public interest was already looked after by Acts of Parliament. The present Council had passed no resolution in favour of the proposals, but had received them as an unholy legacy. His objection was the members would get nothing out of them. Even a martyr expected something for his martyrdom. The Institute in the past had been built up by examination. It seemed to him disgraceful to call the scheme Unification, whereas it was really one of disruption. To call it Unification was a lie. To say "We will admit *some*" was, on the face of it, not Unification. Examination was the foundation of the unique position the Institute occupied to-day. Nobody should be admitted to it without. If the whisky is watered the value of it is lowered. He appealed to the meeting to say "No" to the amendment, and not to allow themselves to be side-tracked.

Mr. Woodward, Jnr., declared that if the Council's proposals were passed no young architect would feel any incentive to work up for the Institute's examinations. Consequently the standard would be steadily lowered, and the Institute would finally consist of Fellows and the rag-tag and bobtail. If Registration was not possible, he believed Unification would lead them very far from the goal.

Mr. W. Henry White was reminded of the same stock arguments which were used against Registration at the Institute twenty years ago. The meeting ought, he thought, to wait until a definite report had been presented by the Committee.

Mr. Gilbert Fraser (Liverpool) said he would be sorry to go back and tell his Society that the Council had changed its policy.

Mr. G. C. Lawrence (Bristol) likewise supported the amendment. The unification of architects was a glorious ideal, and he would like to continue his efforts to make architects a greater and stronger body.

Mr. Chas. B. Flockton (Sheffield) said they were all in favour of Unification and all in favour of Registration—if they could get it. But he felt they were being asked now to admit everybody and to degrade the Institute without any assurance that they might not be asked to repeat the process in, say, a couple of years' time, or that there will be any finality in it. He hoped the degradation of the Institute would not take place until there was a reasonable prospect of Registration.

Mr. Thompson (Doncaster) failed to see how the passing of the proposed resolution would stop the Committee's labours in any way. In the provinces they were up against the competition of men absolutely unqualified.

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They believed the class these men were going to be brought into was the Associates'—the class which so far had won its way solely by examination.

Mr. Long pointed out that the Institute of Chartered Accountants, which included no less than 90 per cent. of the members of that profession, tried every year for Registration. But always without success. The engineers had also failed. What change would architects have? He regarded the amendment as a red herring drawn across the trail, and he objected to the prospect of accepting everybody into the membership of the Institute without the slightest hope of getting Registration in the future.

Mr. A. W. Hennings said that if the resolution was passed he failed to see how any member of the Committee could afterwards put his back into the work.

Sir Banister F. Fletcher begged the meeting to think well before they damned the work already done. The resolution was a weak one. No member of the Committee could go on if it was carried. The meeting ought to wait until the proposals were put in a concrete form. He suggested the members should take no action until they had got the scheme in front of them and could give a straight vote on a straight question.

Mr. E. P. Warren remarked that if a scheme for Unification was embodied in a Bill, and such Bill became an Act of Parliament, the members would have lost a valuable opportunity of making those alterations which are necessary in any human affair. Once an Act is passed any alteration to it can only be affected by means of a second amending Act. If they had a Unification Scheme it could not be expected to work perfectly at once, and they would profit by its failures when drawing up a Registration Bill.

The President, before putting the amendment to the vote, said he would like to make a few remarks as an impartial observer. There had been during the evening various misunderstandings, and he wanted before all things that the Institute should know its own mind and speak its mind. For that reason he suggested that the path of wisdom lay in the direction of the amendment. The proposed resolution was fighting against an unborn child. Get it born first, and then let them discuss it. He did not feel the Institute was ready to declare its full mind.

On the vote being taken for Mr. Buckland's amendment, 80 members were in favour and 118 against.

Mr. Cross's resolution was then put, and the voting was 112 in favour, 66 against.

Correspondence.

To the Editor of THE ARCHITECT.

Unification and Registration.

SIR,—The resolution moved by Mr. A. W. S. Cross and seconded by Mr. George Hubbard at the special general meeting of the R.I.B.A. failed to secure the necessary majority, and was therefore not carried.

Under By-law 68 the subject cannot again be submitted during the current session without the consent of the Council.—Yours, &c.,

IAN MACALISTER, Secretary, R.I.B.A.

9 Conduit Street, W. 1.
February 8, 1922.

Ad Quadratum.

SIR,—The impression left by your review upon this work and by your editorial comments was one of favourable reception certainly if not of warmer approval. At any rate, it seems that the Norwegian Press—no more erudite in matters architectural than our own—has quoted them as fully commendatory, and reached the conclusion that "Ad Quadratum" is accepted in England as an "epoch-making" work. Thereby it is claimed that Norway leads the way in scientific enquiry into mediæval methods of design, and Norwegian patriotism is stirred accordingly.

Whatever may be said of your review, I gathered from your comment that, while you considered the book deserving further enquiry, you were really but sitting on the fence until this had been possible.

On which side you will come down when you have tested the scientific accuracy and acumen of the journalist-author of "Ad Quadratum" and his architect collaborators there can be no reasonable doubt.

Your reviewer evidently accepted the author at his own valuation, and his conclusions as based upon sound fact, without critical enquiry into the premises. Such an enquiry will produce astounding results to anyone who has the material and patience to make it. The whole structure is but a house of cards, and the Norwegian Government would be well advised to wipe off the great outlay it has made upon the publication as a bad debt, and withdraw its imprimatur from a venture well calculated to induce ridicule when subjected to careful enquiry.—Yours, &c.,

MEDIÆVAL STUDENT.

Housing Wrangle.

SIR,—For an example of pure fallacious reasoning, commend to me the letter which appears in THE ARCHITECT dated February 3, 1922, signed by one self-styled "Independence."

The letter, from beginning to end, breathes of the work of a deluded, disappointed man, whose hour of reason has passed, or is passing, and who, as he sinks lower into the depths of despair, seeks to destroy all else within reach.

The nom-de-plume sets the seal to its utter worthlessness, for a whole diameter of being separates independence from subterfuge, the affirmation of the one is the negation of the other.

All architects are human beings, but all human beings are not architects, lucrative though the profession seems to be, and "Independence" certainly speaks with some authority on this subject, for see how aptly he describes how, to be an architect, one must needs be an "imitator," "copyist," or an "appropriator." The "gaff" is blown, as it were, and now everyone will want to be an architect.

From the description given, one irresistibly visualizes an architect as a man who prowls about, snatching at a person's concrete system here, or purloining someone's sanitary engineering scheme there, and it is incumbent on one to keep their hand on their pocket if they wish to preserve their structural engineering scheme intact.

"Independence" has said architects did not initiate a concrete construction scheme; but neither did the concrete engineer invent the cement, or discover the steel which he employs, and the mathematical formulæ he manipulates were the pastimes of the ancients. "Independence" has yet to learn, it appears, that the most any civilised being can do is to employ the product of other people's labour or brains in such a way as to make it serve, in the best way he can, the interests and the requirements of his employers, and also that a "genius" only manipulates the same in a way hitherto unknown, and thus with a minimum of effort produces a maximum of effect.

To blame architects for the high cost of building, one might just as well blame doctors for the number of deaths which take place annually, and complain that they are incompetent and failing in their duties.

"When housing was the concern of architects, prices soared higher." Yes; and

When influenza was the concern of doctors, sickness and death were soaring higher.

I have little doubt that the number of deaths would have been considerably greater had doctors not been employed, and have also little doubt that building costs would have been considerably higher had architects not been employed.

My opinion of "Independence's" letter is that it is foolish and childish in the extreme.—Yours, &c.,

Penarth, Glam. A. C. HUFFELL, P.A.S.I.

Competition News.

Members of the Society of Architects are asked not to take part in the competition for Trujillo's statue of "Liberty" without first ascertaining from the Secretary of the Society that the conditions have been approved by the Council.

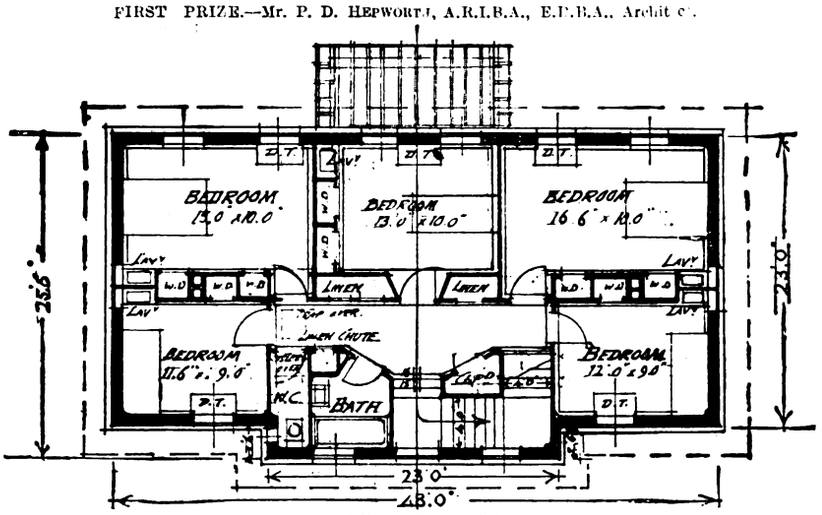
Nottingham Corporation have decided to offer two prizes for the best designs for new buildings to be erected on the Exchange site, which is in the heart of the city, and most valuable for commercial development. It is hoped to attract the best architectural brains of the country, and it is to be left to the successful competitor to place before the Estates Committee the best design for the most remunerative development of the block, whether it should be utilised entirely for offices or shops. It has also been arranged to ask the President of the Royal Institute of British Architects to nominate an adjudicator.

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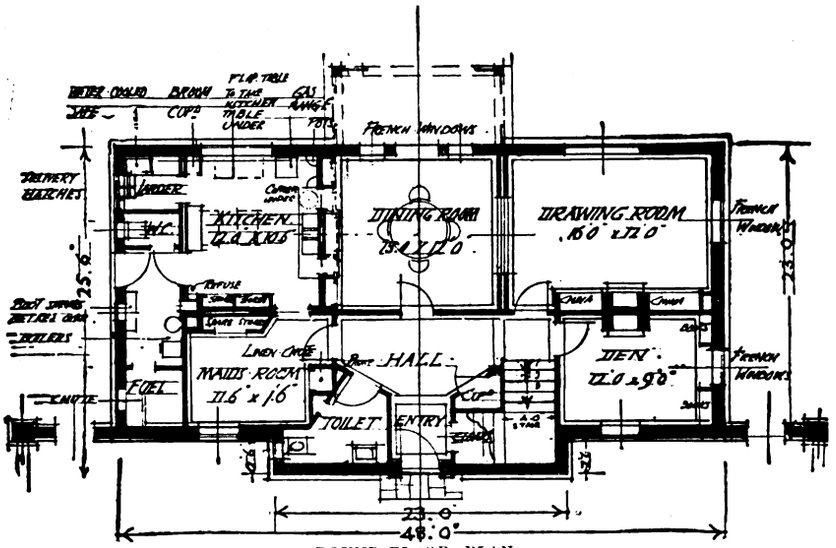
"Daily Mail" Labour-Saving House Competition.

WE do not feel that this competition has produced much which is of value, though it serves to illustrate the fact that a very large proportion of the houses now built from the designs of architects are quite as convenient and cheap as the special designs produced through the agency of this much-advertised competition. Service hatchways between a dining-room and kitchen are a nuisance, rather than advantage, in a small house, and are not required in bigger ones. They are more properly employed in a cheap eating-house or restaurant. Whether a fitted kitchen and maid's room would please the average servant as well as a kitchen and scullery is, again, a moot point. Linen chutes, too, in an ordinary house seem both unnecessary and objectionable. The enclosed staircase eliminates the possibility of making a pleasing feature of what may be made one of the most attractive factors in a house, while we do not think the very small "save" in cleaning is really worth considering. It will be noted in the design placed first that the adoption of this feature renders the small hall space on the ground floor dark, while the fixed lavatory basins upstairs are in every case jammed into recesses which, though giving a neat appearance on paper, would be objectionable in reality. On the whole, we are inclined to think that the design placed third would work out best, though in it the designer has planned a small square hall which, by reason of its position, would be of little use to anyone; the attempt to produce an ingle-nook about four feet six inches wide with a centrally placed radiator immediately opposite the front door seems to us to be a joke. We can understand the difficulty of the competitors, for in the average house designed for a client the architect has something tangible to work on dictated by site or the client's wishes; but in this competition the problem seems to have been to appeal to fussy individuals who imagine that the average house is built without thought, and who have the general impression that a paradise can be produced by the aid of abundant cupboards and rounded angles, and that this paradise can be produced quite cheaply. Reduced to bare essentials, we should say that the chief elements which go to make a house which is easy to run are: a system of central heating, hot and cold water laid on to bedrooms, combined with efficient cooking apparatus and a reasonable supply of cupboards off bedrooms. But all of us know these things, and the chief question, both for our clients and ourselves, is whether we can go to the necessary expense to include them in our designs. It is not want of thought

FIRST PRIZE.—Mr. P. D. HEPWORTH, A.R.I.B.A., E.D.B.A., Architect.

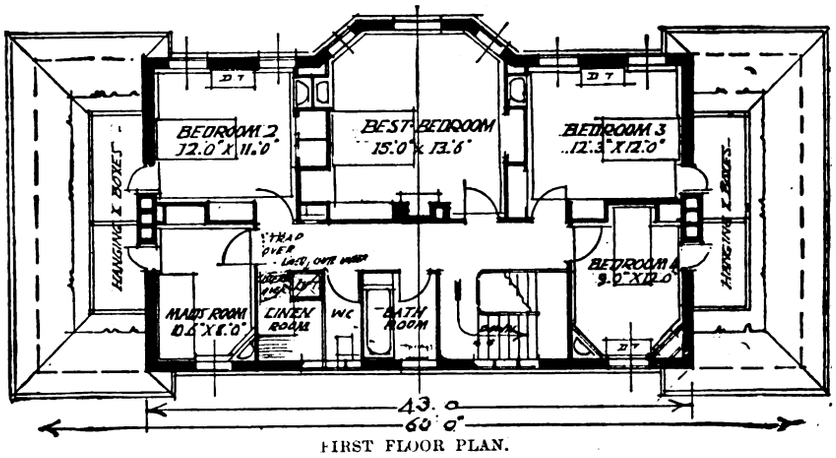


FIRST FLOOR PLAN.

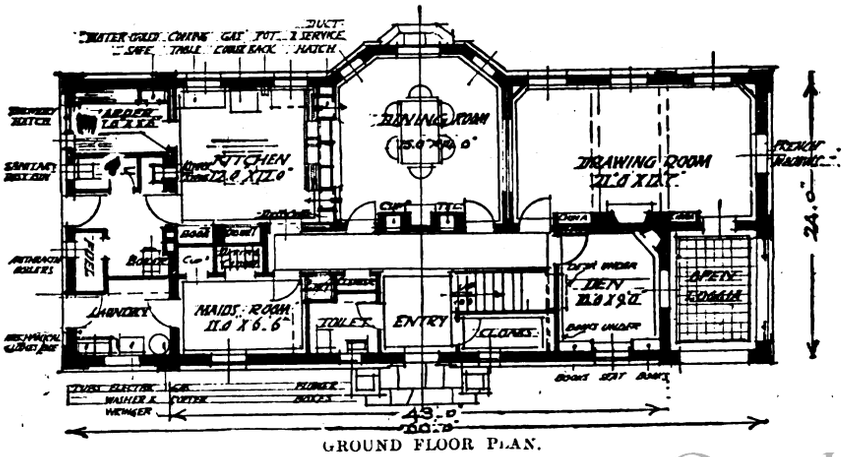


GROUND FLOOR PLAN.

SECOND PRIZE.—Mr. P. D. HEPWORTH, A.R.I.B.A., E.D.B.A., in collaboration with Mrs. J. DRESCHFIELD.



FIRST FLOOR PLAN.



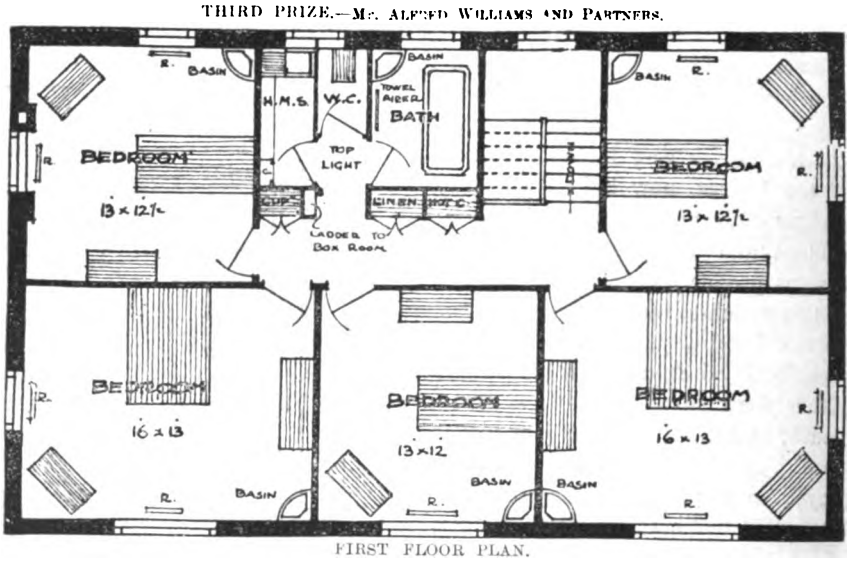
GROUND FLOOR PLAN.

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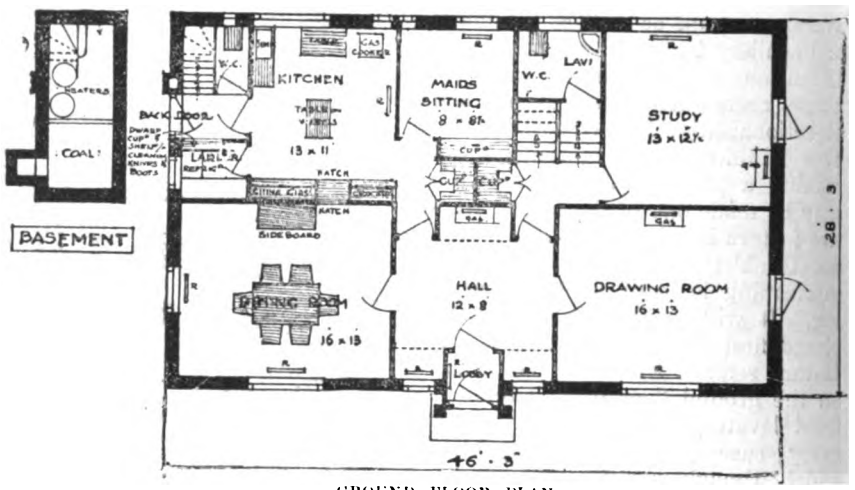
but want of money which leads to them being occasionally instead of generally adopted. It may be noted in this connection that the proprietors of the "Daily Mail" who intended to put up a house from the winning design at Welwyn, are not going to do so on account of cost, and this is exactly what happens in the case of a large number of clients who consult architects. Similarly, it is not want of thought but want of funds which prevents our lining the walls of a scullery with tiles. Possibly the "Daily Mail," with its million and a-half circulation, can bring down the cost of building by two-thirds. If it can do this it will make all these improvements possible.

We give the six premiated plans, which may interest our readers, but omit the views which are not particularly interesting. It only remains for us to congratulate the winners of premiums in this epic conflict, and to hope they will obtain a harvest of eager clients, in designing for whom they may be able to drop some of the pet ideas which have been imposed by the proprietors of the "Daily Mail." That enterprising journal might possibly seek other fields for a competition, such as suggestions for reducing the income-tax while securing the necessary funds for the expenses of the country. This would, at any rate, emphasise what all know—that the "Daily Mail" is the greatest and most useful agency connected with our daily lives.

THIRD PRIZE.—Mr. ALFRED WILLIAMS AND PARTNERS.



FIRST FLOOR PLAN.



GROUND FLOOR PLAN.

The "Architect" Fifty Years Ago.

FEBRUARY 10, 1872.

THE HOLBORN VIADUCT RAILWAY STATION AND HOTEL.

The excavations for the foundation of the Holborn Viaduct station and hotel, which were commenced about a fortnight ago by Messrs. Webster, the contractors, of St. Martin's Lane, are proceeding with much activity, and in the course of a few weeks the ground will be ready for the structure being proceeded with. The station will be erected by the London, Chatham, and Dover Railway Company. Messrs. Webster have several hundreds of men at work in clearing away the earthwork from the site in Bear Alley, and as the excavation proceeds the materials are conveyed to a large staging which has just been erected at Blackfriars, on the margin of the river, between the railway and Blackfriars bridges, and here the earthwork is tipped into barges and taken up the river to Chelsea, where it serves to form the embankment now constructing there, the works in connection with which are also being executed by Messrs. Webster & Co. The main elevation of the station will be on the south side of the Holborn Viaduct, but there will also be another entrance to it from Farringdon Street, by way of Bear Alley. The Holborn Viaduct elevation will consist of a large and spacious hotel, the designs for which have been furnished by Mr. Isaacs, the plans for the rest of the station buildings as well as the station itself having been supplied by Messrs. Johnson & Mills, the engineers to the London, Chatham, and Dover Company. The whole of the ground floor of the hotel, on the street level of the Viaduct, will be strictly set apart as an entrance to the station, as well as booking-offices and general station purposes, the railway level being reached by a broad flight of stairs; and as it will be considerably lower than the level of the surrounding streets the roof of the station will not be much higher than the other property in the locality. It will consist of a single span, but will nevertheless be divided into three bays, and covered in with louvre glazing, ample light and ventilation being specially provided for. In the erection of the booking-offices and other apartments in connection with the station, each company using it will have its distinct and separate premises, and this arrangement will also apply to the station itself. The entire area will be about two acres in extent, and the rails and platforms in this space will be respectively appropriated to the several companies which intend to make use of the station, as well as the Chatham and Dover Company itself, the former companies each paying the latter a rental for the accommodation thus afforded them.

Major H. E. Mathews, F.R.I.B.A., was on Monday last elected a member of the Corporation of the City of London for Dowgate Ward in succession to his father, Mr. J. Douglass Mathews, who retired.

At the last meeting of the Rotherham Borough Council it was stated that the firm whose tender had been accepted for the erection of certain houses had now withdrawn it. They had let, however, contracts with two firms—viz., twenty-six houses, type A, at £495 each, as against £464; and twenty-eight houses, type B, £580.

At the last meeting of the Newcastle City Council a contract was sealed between Henry Kelly, Ltd., and the Corporation, for the erection of 100 houses on the Walker Estate, the contract price being £62,600. The question of the employment of dilutee ex-service men's labour has been settled with the contractor.

With reference to a statement which has appeared in the Press to the effect that an International Exhibition will be held in 1924 at the White City which has the moral support of the Government, we are informed that the Exhibitions Division of the Department of Overseas Trade has, up to date, received no information whatever of this project.

Mr. Philip Tilden, of 3 Pelham Crescent, S.W. 7, has been so overwhelmed with letters, inquiries, and advertisements with regard to the building of the house for the Rt. Hon. D. Lloyd George, M.P., of which he is the architect, that he asks all those who have written to him to take this intimation that the contract is already signed and that those people who are to do the work have already been engaged. He is, however, carefully keeping all the information sent him, and hopes to have use for much of it in connection with other buildings upon which he is engaged. The plans and elevations will be made public in due course.

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Studies of the English Sculptors from Pierce to Chantrey.

IX.— Peter Scheemaker (1690-1771 ?)—*continued.*

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MONUMENT TO SHAKESPEARE (After Kent's Design), WESTMINSTER ABBEY. By SCHEEMAKER.

11. Earlier than the monuments last quoted, and infinitely more famous, is the Shakespeare monument in the Abbey, No. 11 in our list. Vertue has a good deal to say of it, not all of it common knowledge, or, it may be added, grammar:—

"1741. About this time was erected the Statue and Monument of Willm Shakspeare Poet in Westminster Abbey, the money to pay for this was raised by the publick contributors that proposed to have it erected, there was a Subscription of a guinea ticketts and half-guinea, those that would, or others might pay at the Drury Lane playhouse for a play (for the benefit) the overplus to be applyd to pay the expence, and the Masters and players gave their parts gratis that night.

"So likewise they did at another night at Covent Garden playhouse—both which benefitts raised about 300 pounds—this was deposited in trust to the Earl of Burlington Dr. Mead and Mr. Alex Pope.

"at the bottom of this Contrivance some Friends of Mr. Scheemakers, who at first propos'd it for him to be the Sculptor and no one else, - thus he Artfully secur'd himself this Jobb.

"This artfull subtill management, for him doing it, was propos'd, prevented any other competitor; not only this, but upon the conclusion of it, and the good Success of this statue, giving him so much reputation to put him on a level with any other sculptor.

"by this means and so publick a man of greatest note he has made himself famous and noted—ten times more than before—as indeed on all hands it is allow'd to be an excellent well dispos'd and wrought Statue. Crowds of Spectators daily resort to see it—and mostly commend it."

More about this statue will be found in the succeeding chapter on Rysbrack, who evidently felt injured in the matter, and had Vertue on his side. In the margin of the above passage Vertue makes the interesting remark that "the name cutt over the Statue *Shakspeare* not Shakespeare was done from my observation in his will sign'd by himself left in Drs Commons." The "power behind the throne" which got Scheemaker the commission was probably Kent, who designed the monument, and obviously intended the sculptor to get the commission.

To complete the list of Scheemaker's works in the Abbey we must add:—

12. Tablet to Sir H. Belasye (ob. 1717), probably the earliest work of the sculptor in England.

13. Monument to Dr. John Woodward, the geologist (ob. 1728).

14. Bust of Dr. Freind (ob. 1728).

15. Bust of Dryden, erected by the widow of Sheffield, Duke of Buckingham, in 1731.

16. Tablet to Lord Aubrey Beauclerk (ob. 1741), with a verbose epitaph by Thomson.

17. Bust of Colonel Kirk (ob. 1741), son of the infamous leader of "Kirk's Lambs."

18. Bust of the engineer Horneck (ob. 1746), grandfather of Goldsmith's Jessamy Bride.

19. Bust of Dr. Mead (ob. 1754), than whom, in Johnson's famous phrase, "no man walked more in the broad sunshine of life."

20. Tablet and trophy, presided over by a weeping woman, in memory of Viscount Howe, killed on the march to Ticonderoga in 1758; after the designs of one B. Stewart.

21. Monumental tablet to Magdalen Walsh (ob. 1747) The Cloisters, Westminster Abbey.

The following list of works outside the Abbey is probably very imperfect, but is believed to be longer than any yet given:—

22. Bust of Sir Hans Sloane. British Museum.

23. Bust of Dr. Meade. Temple Church.

24. Lewis, first Earl of Rockingham (ob. 1723), in classic costume; and his wife, in a species of Vandyck dress (ob. 1695), Rockingham, Northants; signed by Scheemakers [*sic*] and Delvaux. An important early work, hitherto omitted, erected by Rockingham's daughter in 1725.

25. The Duke of Kent (ob. 1740) and his family, Flitton, Bedford, remarkable for the seated figures, a rare pose adopted perhaps from Stone's Holles monuments in Westminster Abbey. Two sketches in the volume in the Soane Museum appear to be studies for one of these figures.

26. Monument to Montagu Gerrard Drake, Amersham, Bucks, a large and imposing erection.

27. Monument to Henry Petty, Earl of Shelburne (ob. 1761), High Wycombe, Bucks, for which he is said to have received £2,000.

28. Monument to J. Knight, Gosfield, Essex, erected by his wife, a sister of James Craggs, 1733. "In the Church, monumental statues of Mr. Knight and his Lady," is Vertue's note (June 18, 1739) in his account of his Tour with Lord Coleraine.

29. Monument in Siena marble to Lord Chancellor Hardwick (ob. 1764), Wimpole, Cambs. One of the latest and most important of his works.

30. Equestrian statue of William III. for Bristol, executed in rivalry with Rysbrack, and so fine that Scheemaker received "a solatium of 50£" for the model, though he did not get the commission. Afterwards, according to Vertue, "it was executed in a composite hard melted lead, &c. now finisht to be sett up at Hull in Yorkshire," where it now is.

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31—36. Busts of the Hon. Lawrence Shirley, his wife, and four children in the library at Staunton Hall, the seat of Earl Ferrers. (Nichols' *Leicestershire*, III., Part II., p. 717).

37. Monument to Steele's heroine, Lady Elizabeth Hastings (ob. 1739), Ladsham, York.

38—41. Four busts in the Library of Trinity College, Cambridge: James Jurin (ob. 1750), Roger Cotes (bust erected 1758), Robert Smith, Master of Trinity (bust erected 1758), E. Wortley Montagu (1766), one of the latest works of the sculptor.

42. Bust of Alexander Small (ob. 1752). Clifton Reynes, Bucks.

43. In the British and Mediæval Department at the British Museum is a plaster bust of Erasmus, of obviously eighteenth-century type, with hairy eyebrows and deeply hollowed eyes. As we shall see from the Sale Catalogues, Scheemaker made a bust of Erasmus; evidently one of those which Vertue mentions as taken from old pictures, and there can, I think, be no doubt that this is a cast of that work. The companion bust in the Museum, a "Cicero" (not the true type, but taken from a portrait known from the Renaissance onwards by this name), is probably a cast of one of his Italian studies, since a number of ancient works of sculpture were, as we have seen, copied by him.

45-48. Four portraits, Spenser, Shakespeare, Milton, and Dryden, presented to Pope by Frederick, Prince of Wales and by Pope bequeathed to George, Lord Lyttleton, were sent from Hagley to the Manchester Exhibition of 1851. There are attributed to Roubiliac by Alan Cunningham and all subsequent writers, which is a sufficient tribute to their merit.

49. Bust of Earl Temple, Stowe.

50. Bust of George Grenville, Stowe.

Next in order comes an important group of works of every class except the funerary, executed for Stowe, and now, alas, scattered to the winds. Of these the most interesting, because of a class unrepresented elsewhere in Scheemaker's larger works, is:—

51. Venus and Adonis, group about half life-size, formerly in the east portico at Stowe, though originally in the Flower Garden, executed as a pendant to his friend Delvaux' Venus and Pomona. The group is not of conspicuous merit, but is curious as being wholly in the French taste, and curiously unlike Scheemaker's other work and the Antique which he so conscientiously studied.

52-55. The statutes of Homer, Socrates, Lycurgus, and Epaminondas in the Temple of Antient Virtue; works wholly classical in feeling except the last, where the sculptor had no genuine portrait to fall back on, and therefore went wrong over the details of a Greek warrior's dress.

56. "The alto-relievo in the pediment of the Temple of Concord and Victory, representing the four quarters of the world bringing their various products to Britannia," one of the most successful of minor modern attempts at pedimental sculpture, the figures sketchy and in low relief, but graceful and well grouped. The four medallions inside the portico commemorating the Peace of Amiens are probably also by Scheemaker.

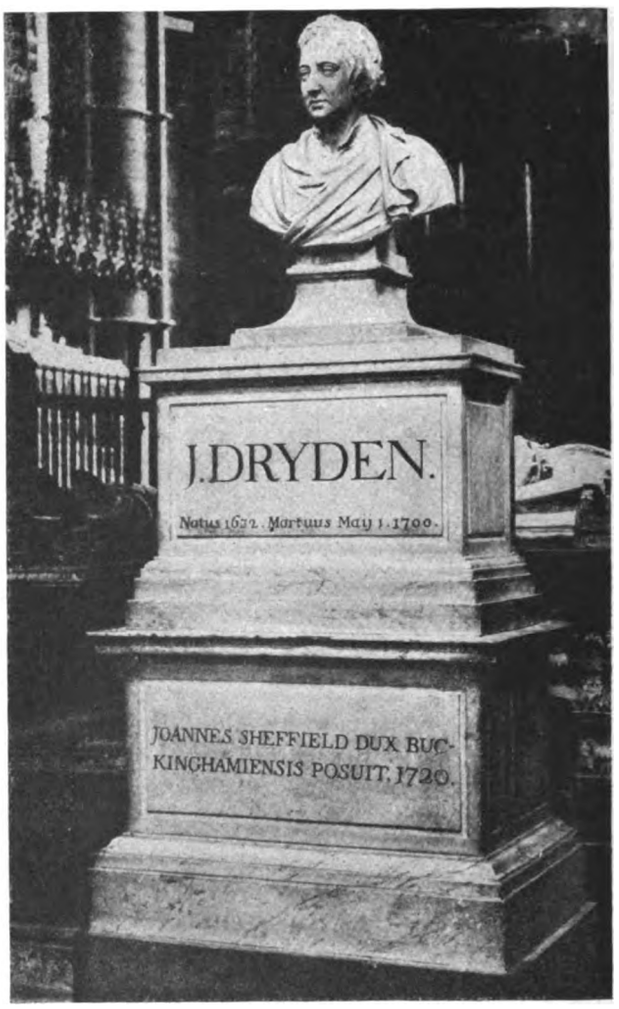
57. Equestrian statute of George I. in lead, a moderate work.

58. Relief of Alexander in the Tent of Darius, formerly in the hall at Stowe, a crowded and unsatisfactory work, with a curious mixture of figures in relief and in the round.

To these, we may add, as closely akin to the decorative work at Stowe:—

59-60. Two large sculptured vases after the Antique, sold at the Wanstead Sale of 1822.

It is also highly probable that there are other works of Scheemaker at Stowe. The Temple of Friendship which, as J. T. Smith thought, contained a number of his works, was empty when the writer visited it in June, but since Vertue, as we shall see, expressly names seven



BUST OF DRYDEN, WESTMINSTER ABBEY.
By Scheemaker.

of the busts in the Temple of British Worthies as by Rysbrack, the remaining nine, those of Pope, Gresham (after Bushnell's statue at the Royal Exchange, as Vertue's engraving shows), Inigo Jones, King Alfred, the Black Prince, Raleigh, Drake, Hampden, and Sir John Barnard, may be attributed with something like certainty to Scheemaker. It is frankly impossible to distinguish these decorative works on the grounds of style alone; Rysbrack was ordinarily the greater artist, but here, save for Vertue's express statement, we should attribute them to the same hand. Scheemaker, moreover, made a statue of Sir John Barnard for the Royal Exchange, which perished in the fire of 1838; it is, therefore, practically certain that the Stowe Barnard and its companions are also by him.

Generally speaking, these busts are historically accurate; where authentic portraits exist they are faithfully reproduced, but where none are available, as in the case of the Black Prince and Alfred, the effect is that of the preposterous mediævalism of Strawberry Hill. Contemporaries such as Pope are represented wigless and in classical drapery, but the Sir John Barnard, in wig and mayoral robes, is suddenly alive.

This list, as already said, is probably very incomplete, but it suffices to show that Scheemaker was a prolific sculptor of considerable achievement. As Dallaway only mentions fourteen works by name, and later authorities perhaps twenty more, it may be regarded as more satisfactory at least than previous lists. When we add the large number of "models, marbles and casts, in groups, figures and busts" sold by auction in 1756 and '57, of which Smith tells us, on his father's authority, that, "placed upon tables, stands and shelves, covered with green baize" round Langford's auction-room, they "made a most beautiful appearance,"

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METROPOLITAN WATER BOARD OFFICES, ROSEBERY AVENUE: OLD OAK ROOM INCORPORATED IN NEW BUILDING.

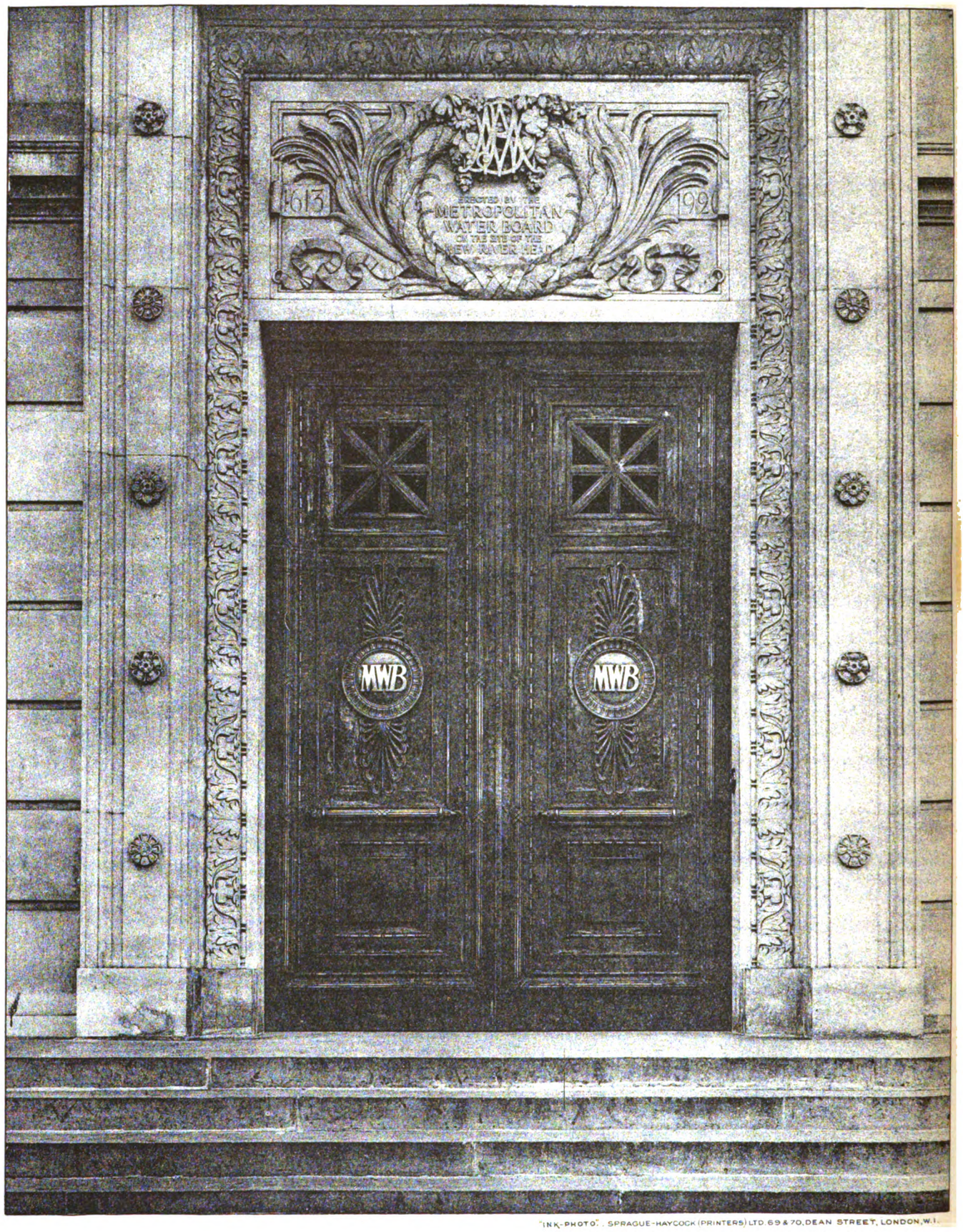
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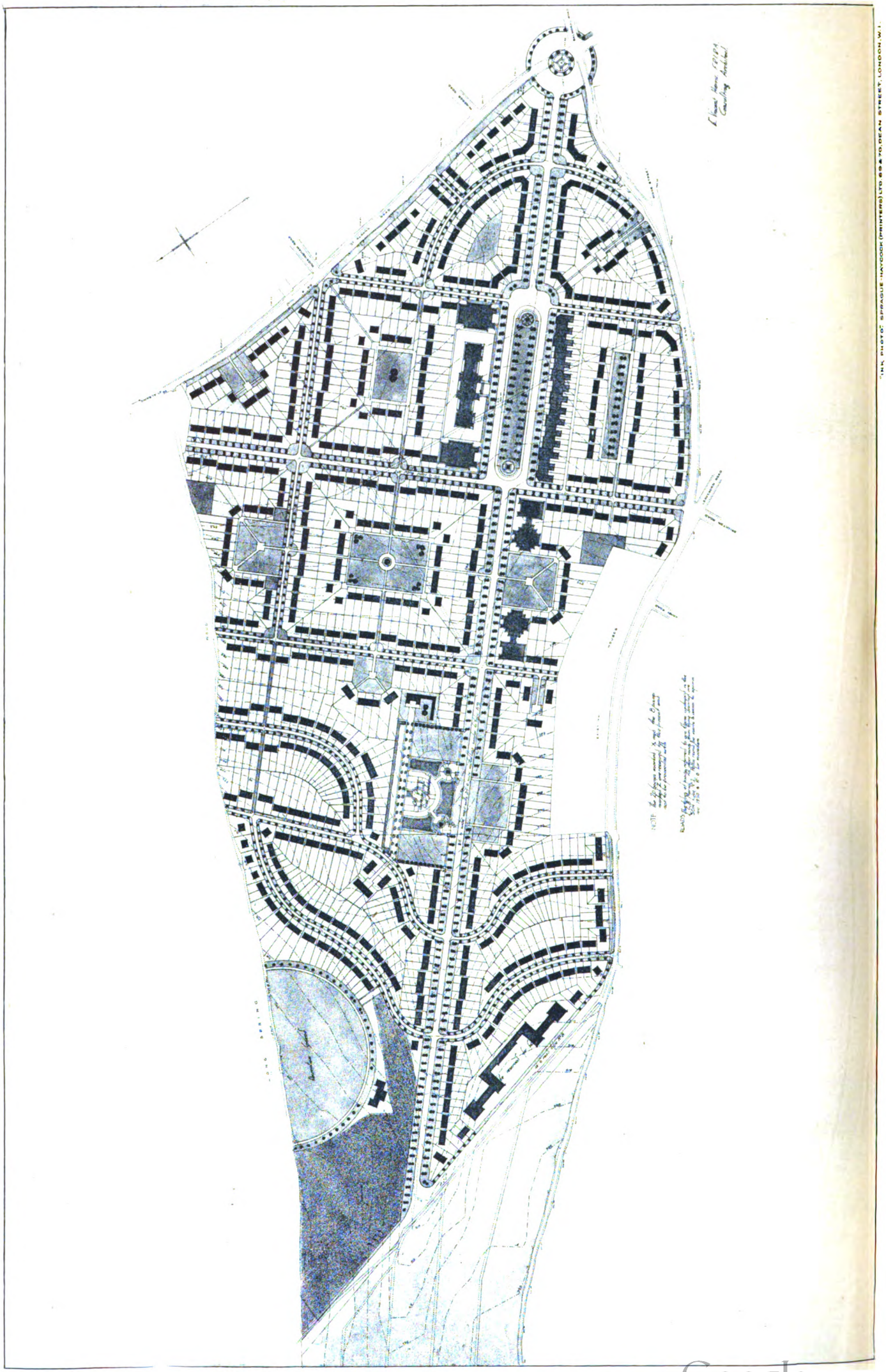
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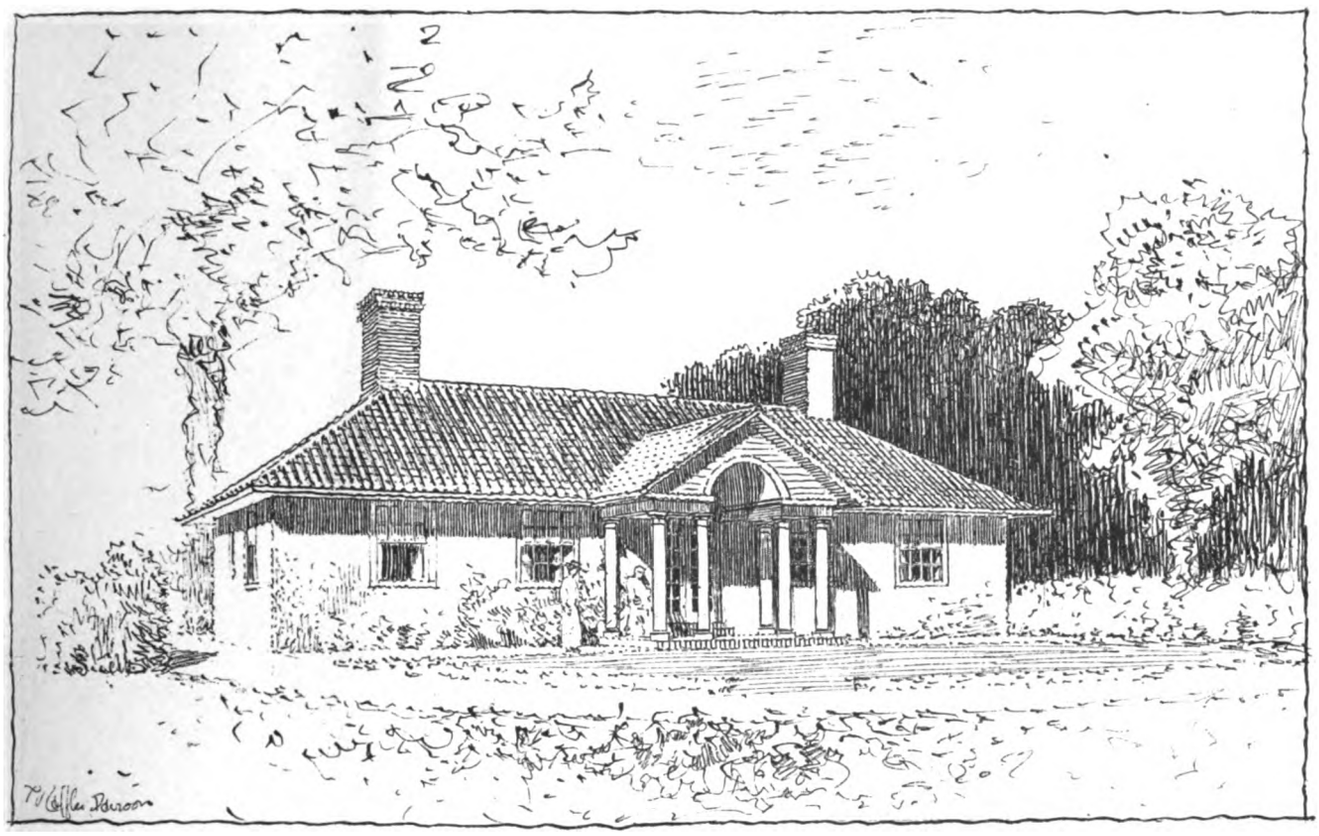
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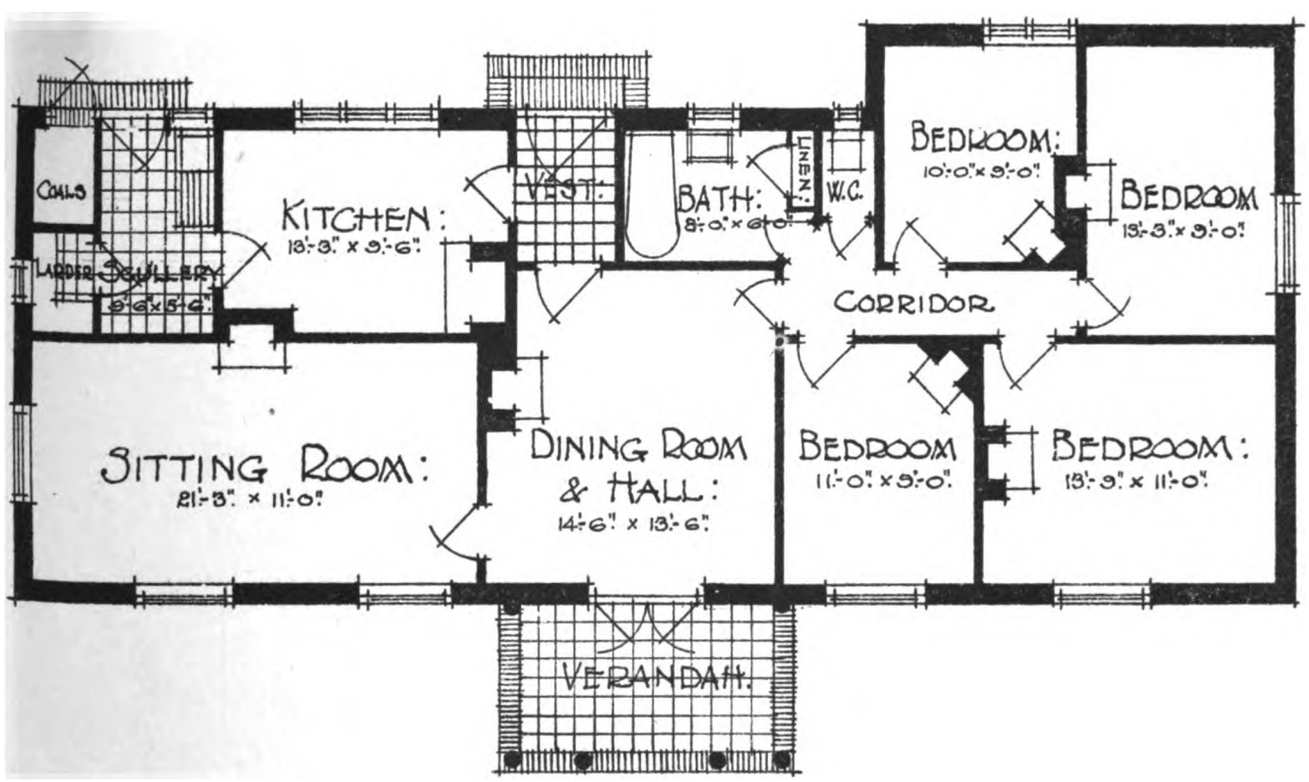


WATFORD HOUSING SCHEME: HAREBREAKS ESTATE.

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GROUND FLOOR PLAN:

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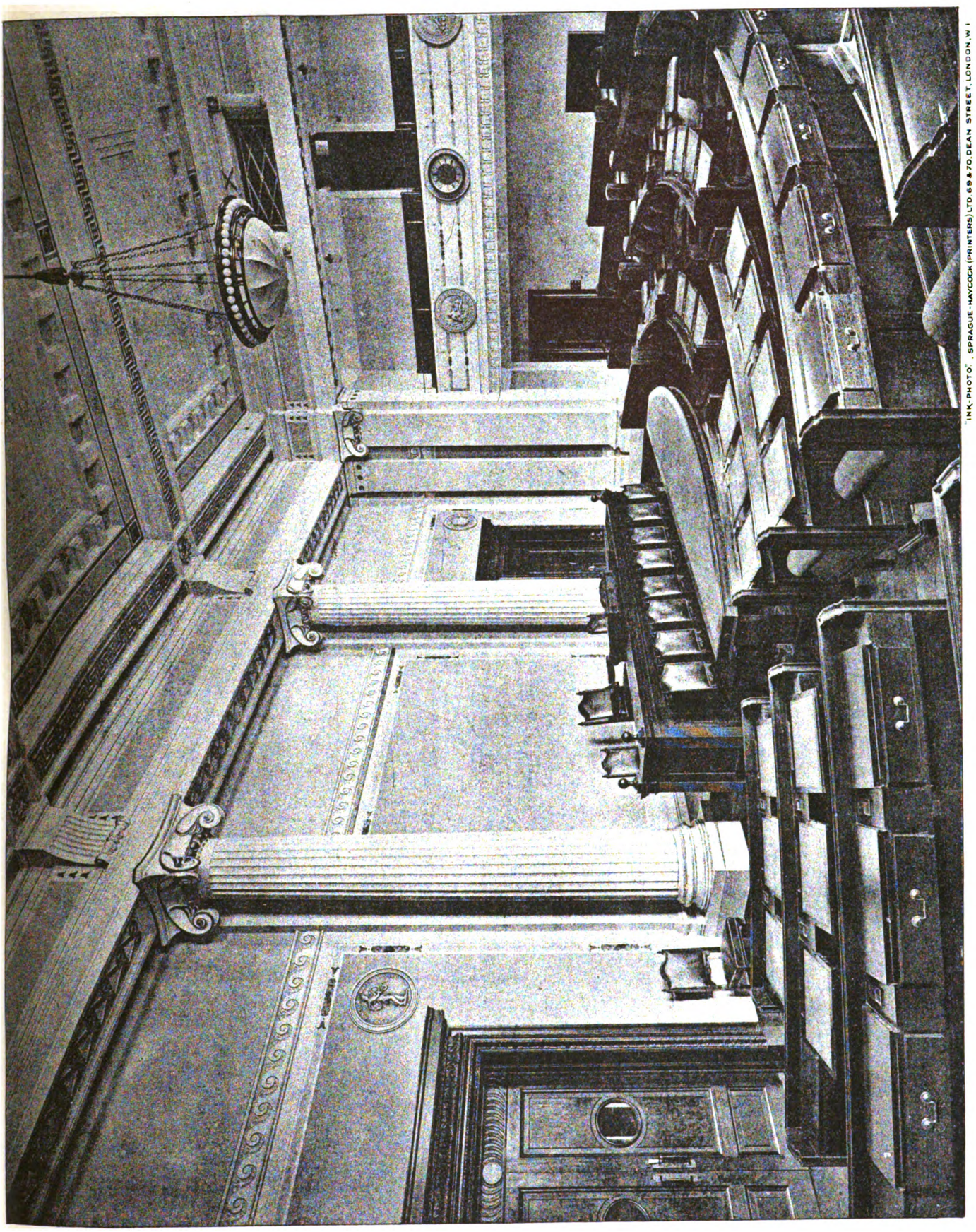
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BUNGALOW, SCHOOL LANE, GERRARDS CROSS.

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METROPOLITAN WATER BOARD OFFICES, ROSEBERY AVENUE: BOARD ROOM.

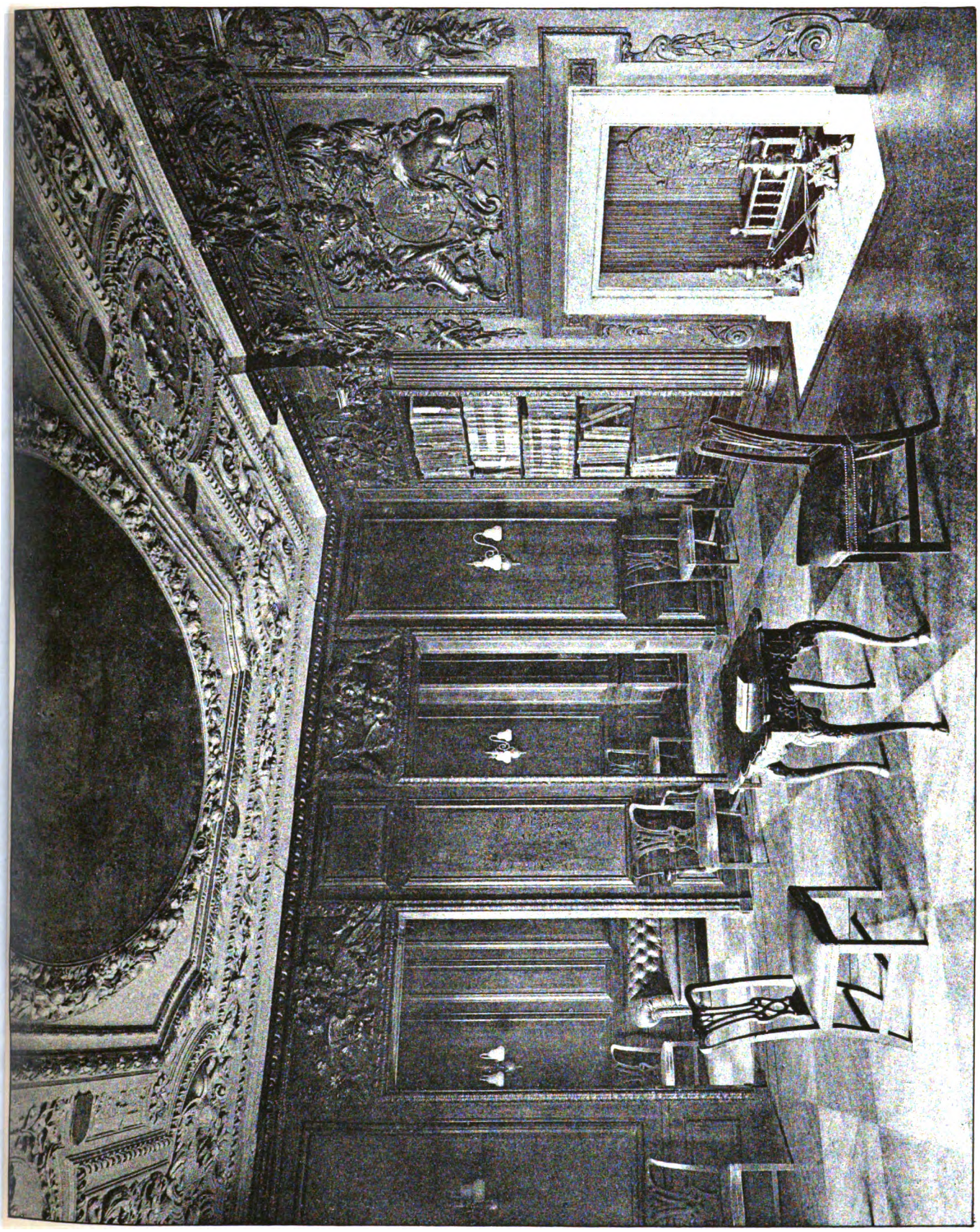
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METROPOLITAN WATER BOARD OFFICES, ROSEBERY AVENUE: OLD OAK ROOM INCORPORATED IN NEW BUILDING.

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MONUMENT TO HENRY PETTY, EARL OF SHELBURNE, HIGH WYCOMBE. By SCHEEMAKER.

though the only one he mentions is a small marble copy of the Laocoon, a model of which Vertue, as we have seen, had noted long before, the total is still more imposing. The Sale Catalogues can be consulted at the British Museum, but space forbids our setting out their contents at length. One set, however, may be mentioned, as Vertue singles them out for admiration in a passage in B4, dated 1748: "Mr. Sheemaker's modells, or studyes done at Rome from some famous antient Statues small in clay are much admired—are now to be cast in plaster by Subscription sold at 5 guineas the five figures—the Hercules, Flora, Venus, Faunus, Zingara [or] Egyptian woman," i.e., the Camillus of the Capitoline Museum.

Two pages further on we read "Mr. Sheemaker's 5 models now done." [Note in margin, "1 May done."] As already noted, the original model of the Flora is in the Soane Museum.

Briefly summarised, the information given by the Sale Catalogues is as follows. The Sale of 1755 was of prints and drawings only; that of 1756 included a small collection of good pictures of the Flemish and Italian schools, numerous models by Delvaux and himself after the antique, Fiammingo and Bernini; and a variety of models ranging from those for the busts of Milton, Locke, Dryden* (a replica perhaps of that in the Abbey), to the model for Dr. Chamberlen's monument in the Abbey, a bust of Erasmus (the cast from which at the British Museum has been already alluded to), and a group of Cupid and Psyche. A statue of Shakespeare is also mentioned—whether or not a repetition of that for the Abbey cannot be determined, but it is perhaps worth mentioning that there is a small marble version of that work in the round in the Guildhall Museum. The third Sale (1771) included numerous terra-cottas after the antique, other models of Milton, Locke, Shakespeare, Edward VI., Newton, and Raphael; a copy of Michael Angelo's Bacchus, and others after Bernini and Fiammingo; "figures"—clay models presumably—of the William III. at Hull, Lady Elizabeth Hastings, the monuments to Laurence, Pocock, Clive, and Watson (three of this last); copies of the antique; and a whole mass of miscellaneous work, vases, pedestals, and models of animals, as well as a cast of Bernini's Apollo and Daphne.

It is clear that Scheemaker was a man of endless industry, and full of admiration for the work of the great masters of ancient and modern times. When we consider the mass of material which these sales imply, and the great output already mentioned, together with the personal information as to his industry embodied in Vertue's note-books, which lay ready to his hand, we can only admire the self-restraint of Horace Walpole, who, while expressing his high opinion of Scheemaker in the preface to the "Anecdotes," refrained from using the information he possessed, out of respect for the dead Vertue's wishes.

No one would call Nollekens a sentimentalist, but that he set some value on the works of his old master may be inferred from the number which appear in the Catalogue of the Nollekens Sale, July 4, 1823.

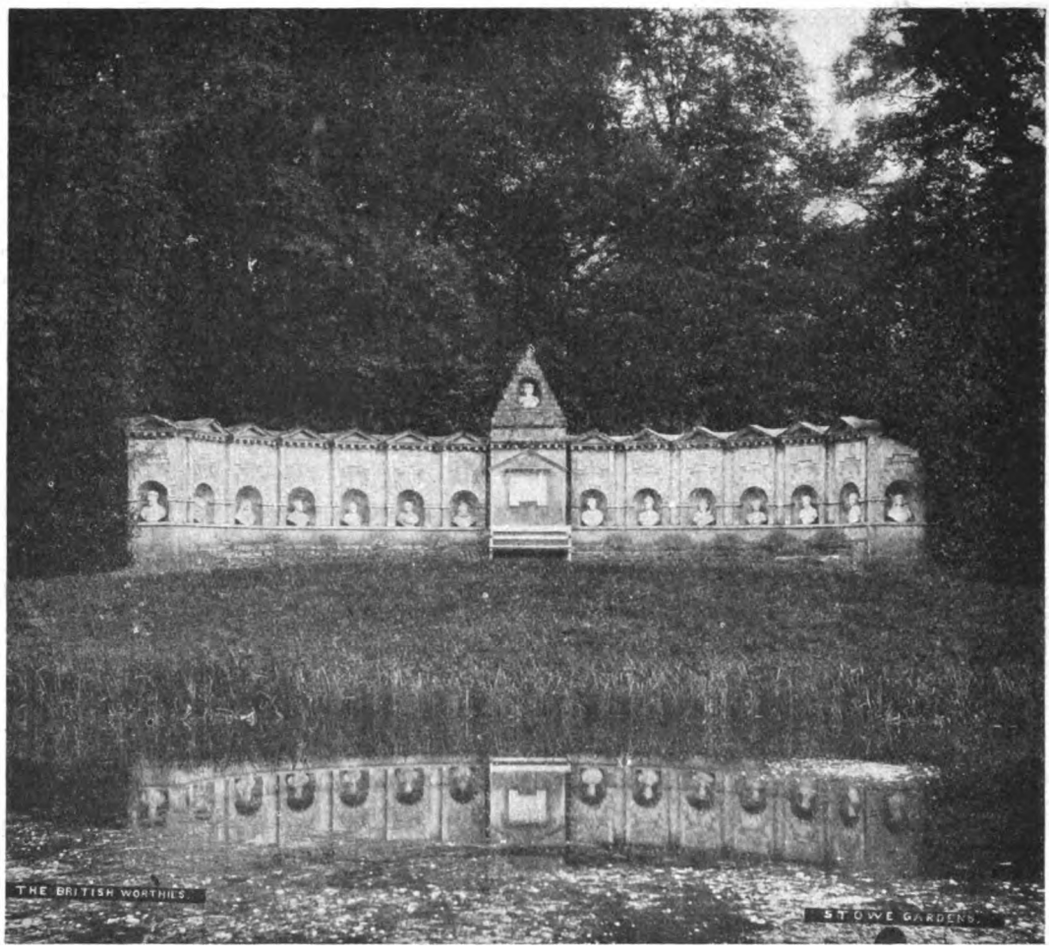
(1) Scheemaker's copy of the Piping Faun of the Villa Borghese, and a cast of that copy.
(2) Cast of Scheemaker's William III. at Hull.
(3) Sealed figure of Paris.
(4, 5) Figures of Neptune and Pluto.
(6) Homer, by Scheemaker and Jeremiah.
(7) Scheemaker's copy of the Laocoon
(8, 9) Busts of a Satyr and Faun.

The mention of Nollekens brings us back to Scheemaker's personality. The absurd remark in the "Gentleman's Magazine" for 1818 that "his being a German secured him the favour of the Court" may be disposed of by the simple remark that he was not a German, and not only had no monopoly of Court patronage, but very little of it at any time. Vertue, as we have seen, greatly admired him, though he was much annoyed by the intrigues over the Shakespeare monument, since he was, as we shall see, obviously fonder of Rysbrack than of his rival, and vexed that the former had no chance of competing on this occasion. He also petulantly complains in a passage, to be quoted later, that Scheemaker persistently undersold Rysbrack; but that the former sculptor was capable of generous enthusiasm appears from his praises of Quellin, and the information he gave Vertue about that sculptor, of which more will be said later. Smith himself tells us that Nollekens "worked for nearly ten years under his friendly master, without the interchange of one unpleasant word," which shows that the older man was of a kind and generous temper. His wife we only know from the glimpses of her in connection with the boy Nollekens already alluded to, but the son, Thomas Scheemaker, junior (1740-1809), was a man of some capability. His dates show that his father presumably married late, as Smith's stories go to show that his wife was English, and there is an attractive model of Arion by the son in the Victoria and Albert Museum which but for the date (1773) might well be attributed to the father. Another of Scheemaker's pupils, according to Mrs. Delany, who saw him in Dublin, was the sculptor Van Ost, who must have served his time earlier than Nollekens, as he had set up for himself in Dublin as early as 1750.

Scheemaker has never received his due as the eldest of the three sculptors to whom, in the words of Vertue, "sculpture has of late years made much greater advances" than the sister-art of painting. He used classical and allegorical figures upon his monuments—so did everyone else; he increased the taste for pyramidal grouping which Walpole attributed to Rysbrack, and which both derived from the later baroque school; but—and this has not been remarked, though it is much to his honour—he was sometimes independent enough to represent his figures in contemporary costume. We have seen this in the case of General Monck, and it is even more remarkable in the Stowe busts and the Edward VI.

* This Dryden fetched £22 10s.; the Milton only £2 12s. 6d.!

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THE TEMPLE OF BRITISH WORTHIES, STOWE GARDENS. Busts by Rysbrack and Scheemaker.

at St. Thomas's, which, we have the authority of Vertue for saying, was copied from Holbein. Furthermore, he seems to have worked on his own statues to a far greater extent than was customary at the time, the only certain example of a statue being executed by another being that of Clive, which was worked upon by Nollekens when his master Scheemaker was seventy. The variety of material in which he worked—bronze, marble, stone, lead, and terracotta—gives him another claim to the attention of posterity. The list of works here attributed to him covers nearly fifty years of crowded national life and reflects every phase of its history, political, artistic, scientific, naval, and military. The great monument to Lord Chancellor Hardwick alone, executed when the sculptor was nearing eighty, would suffice to show that he was what Vertue called him, "one of the most elevated men in art here," and the sentence is a fitting summing-up of the life-work of a sculptor who was, throughout his honourable career, so closely in touch with much that was best and greatest in the life of his day.

Notes.—In a volume in the Soane Museum, entitled "A Series of Drawings and Sketches by Scheemakers, Roubiliac, Rysbrack, Nollekens, &c., &c., Bought at the Sale of the latter Sculptor, 1824," are a number of drawings, mostly unidentified. All are studies for monuments. A complete collection of photographs of the sculptor's works would probably enable them to be identified; the two studies for the seated figure of a nobleman may, as already said, belong to the Scheemaker's monuments of the Dukes of Kent. Pending further inquiry, the writer must be content here with recording the existence of the volume, and with noting that a study for a monument to some naval commander, with a *columna rostrata* in the background, may be a first thought for the monument to Monck, Duke of Albemarle, in Westminster Abbey.

Since the above was written we have heard from the Librarian of Trinity College, Dublin, that six of the busts which adorn that splendid building—those of Shakespeare, Ussher, Locke, Homer, Cicero, and Milton—are by Scheemaker. Four of the six subjects we have already met with, and the Homer and Ussher are well within the range of his other work.

(*To be continued.*)

For preceding articles of this series see:—Introductory Article, July 1; Nicholas Stone (1587-1647), July 8; Edward Pierce (ob. 1698), Sept. 2; Caius Gabriel Cibber (1630-1700), Sept. 16; Grinling Gibbons (1648-1721), Sept. 30; John Bushnell (d. 1701), Oct. 7; Francis Bird (1667-1731), Oct. 21; Peter Scheemaker (1690-1771?), Dec. 9.

Forthcoming Events.

Friday, February 10.—Industrial Council for the Building Industry. Quarterly Meeting at Montagu House, Whitehall, S.W. 10.30 a.m.

—— London Society. Meeting at Royal Society of Arts, John Street, Adelphi. Paper by Sir Joseph Broodbank entitled "Progress in the Port of London." 4.30 p.m.

—— Town Planning Institute. Meeting at 92 Victoria Street, Westminster. Paper by Mr. J. P. Orr, C.S.I., C.B.E., entitled "Zoning Investigations in London." 6 p.m.

Thursday, February 16.—Edinburgh Architectural Association. Meeting at College of Art, Lauriston Place. Lecture by Mr. Oscar Paterson entitled "Digressions in Stained Glass." 7.30 p.m.

The problems in design submitted by candidates for the R.I.B.A. Final Examination and the Special War Examination will be on exhibition in the galleries of the R.I.B.A. from Friday, February 10, to Friday, February 17, between the hours of 10 a.m. and 5 p.m.

Mr. Sydney Tatchell, F.R.I.B.A., has been appointed by the Council of Almoners surveyor to Christ's Hospital, on the retirement of Sir Alexander Stenning, who had held the appointment for upwards of twenty years. Mr. Tatchell is surveyor to the Worshipful Company of Ironmongers, and architect to the Public Health Committee of the Surrey County Council. He is senior acting partner in the firm of Bourchier, Tatchell, and Galsworthy.

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Royal Institute of British Architects.

The seventh general meeting (ordinary) of the session was held at 9 Conduit Street, W., on Monday last, the 6th inst. Mr. Paul Waterhouse, M.A., F.S.A., was in the chair.

The Hon. Secretary announced the death of Mr. Henri Favager, F.S.A., elected Fellow 1901. Also the death of Mr. Ernest Newton, a past-president of the Institute, Royal Gold Medallist, and a Royal Academician. That loss was one, said Mr. Keen, which touched him very nearly indeed, for Mr. Newton and himself had shared offices in Gray's Inn for a great number of years past, and there had always been the happiest possible relations between them. He missed him all the time. Mr. Newton was one of the most successful architects of his generation, and deserved every ounce of it. During the war Mr. Newton served the State with considerable ability and success, and he served the Institute as President in a way which won the esteem of all its members.

Mr. Paul Waterhouse, in referring to Mr. Newton's death, remarked that he, like many of those present, felt he had lost a very dear friend. Of his professional career he would say nothing; but of his character it was difficult to refrain from saying a word. It was difficult to sum Mr. Newton and his grace of manner up in a phrase; perhaps "innocence" in the best sense of the word might do; he was ever supremely gentle, and could always be approached; his "fellowship" was invariably good.

The vote of condolence was then passed by the members standing in silence.

President's Address.

Mr. Paul Waterhouse then gave the following address to students:

There are three unfailing ingredients in an address to students: a congratulation to the students on living in their present generation and under their present advantages, an assurance that it is as satisfactory to lose a prize as to win one, and finally a desperate assertion on the part of the speaker that he, like his hearers, is a student. If I keep alive these three traditional essentials to-night it is not because I am quite sure that I thoroughly believe in any of them, but because I should like to study them in something more than the conventional aspect. To begin with the last first, if I am a student it is clear that I am not one in the sense in which you are. There is a pleasure in acquiring knowledge, and, being fond of pleasure, I sometimes still acquire it; also there is a kind of shame in being ignorant of certain things, and from time to time I, like other seniors, try to fill up some of the worst chasms of ignorance. In those senses a man of my age may be said to be a student. But the attitude of mind in my contemporaries and myself is entirely different from yours. Up to the age of twenty-five, or perhaps thirty, a man is engaged in a desperate struggle to quarry for himself a certain bulk of knowledge—if he falls below that bulk at the given age he goes into life short of something that he can rarely make up in after life. He is therefore in those days of his youth under a strain of acquisition to which his elders are not subjected. And if his pleasure in the learning habit continues in after life it is probable not that he was behindhand when the hour of his supposed full equipment struck, but that he had by that time learnt enough to know how little he had by that time dug from the vast rock of available knowledge.

Again, owing to the limits of human vision, the young man's outlook on the world of capturable knowledge is entirely different from that of the older man. *You* are reasonably certain that with reasonable application you can in the allotted time be master of the allotted facts—and for all you know the allotted facts are enough to make you the perfect man—or, better still, the perfect architect. For *us* (the men of my age) the point of view is different. The horizon of unacquired knowledge is further off, the unworked quarry is deeper, and the task of gaining any completeness of knowledge is more obviously hopeless. Does that sadden us? Far from it. I think our case is the happier of the two. In the first place it is acknowledged that there is no obligation upon any man over forty ever to learn anything, and many of us enjoy this liberty to the full. Secondly, to those of us who do care to go on with the learning process, the boundlessness of unattained knowledge is not a trouble, but a positive pleasure. For what does it mean? It means this, surely, that the hilltop being unreachable we don't try to reach it; we are free to pick and choose among the thousand paths that encircle the mountain, or, more happily, to plunge into some of those thick coverts where as yet but few have trodden.

To put it plainly, what is a business to you is a sport to us. After all, the happiest people are those who make a sport of their business and a business of their sport; so it is difficult to say whether you or we are the happier. But you can take it from me that if a man's life is devoted to architecture, and if he is able to discover in it both his life's work and some of his life's sport, he will not find his life's *troubles* in his architecture. Do I mean that an architect's sport should be in architecture to the exclusion of physical and other sport? Not I!

People do not always realise the necessity for mind sport. The intellectual classes—I mean the people who earn their bread mainly by the sweat of the *brain*—have a way of thinking that mental exercise is work and bodily exercise play. I don't wish to linger over this disastrous error longer than to explain that there is such a thing as brain sport and that it can be had in a great many other forms than novel reading, the drama, and cards—all of which are most excellent.

So far have I been led—perhaps led astray—by discussing the theory that both you and I are students. What of the suggestion that you are to be congratulated on the postponement of your birth till the present generation of knowledge? This is an interesting problem and a pretty difficult one. We know that the world of to-day knows a great deal more than the world of, say, thirty years ago. We also know that the tests of knowledge applied to young men now, in the way of examinations and competitions, are stiffer than the tests applied to your fathers. What can we deduce from this? The obvious and most simple deduction is that the educational burden on your generation is much heavier than that laid on mine. If we leave it at that I can hardly offer you my congratulations with anything like sincerity. But is the deduction a fair one? I don't suppose it is. Some will say that every generation is more capable of acquiring knowledge than the previous one, and that this is a symptom of the general march of civilisation from the savage to the man of supreme wisdom. I do not think this is historically true. Far be it from me to suggest that your generation is not an abler one than mine. I expect it is. But there were men in the thirteenth century, the first century A.D., and the fourth and fifth B.C. with whom we dare not for a moment compare ourselves. The fact is, I expect, that the ever-increasing burden of the bulk of available knowledge is counterbalanced by three things. One is that as knowledge grows the means of acquiring it quickly also grow; another that a tendency to greater specialisation lessens the individual load of the learner; and the last is this: that, after all, the race a young man runs is not a race against the general progress of universal knowledge, but a race against his contemporaries, who, being like himself receptacles of limited capacity, cannot any of them contain the uncontainable. To put it more clearly by an illustration: your matches are not against Bogey but against fellow-members of the golf-club, and by alterations in the course due to these earthquakes which are called advances in knowledge, Bogey becomes unrelatable

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to first-class play, the committee sees to it that the Bogey scores are changed.

So it stands thus, I think—a man's chances of success by supremacy are equal in all ages; but inasmuch as it is well to have all the knowledge possible, and especially so in our own most delightful craft, I fall in with my predecessors and say, Happy are you in that you were born on a higher contour line than us, and happy are we who are still in sight of your beginnings of achievement on the higher slopes.

Just a word about the subject touched above: the easing of the individual burden by specialisation. An architect must at least in his training be an all-round man. There is a real danger lest the magnitude of his task be relieved either by neglecting one side of architecture for another or by neglecting general education. Without general education an architect can neither face the problems of his craft nor the personalities of his clients or of his contractors. Gloomy as is the spectacle of an architect who neglects construction for pictorial effect, or who starves his art because he develops his knowledge of material, there is a more woeful sight—that architect who in everything but design is a man of general ignorance.

And so I come to the last point—the consolation which the reader of an address to students offers to the unsuccessful. It cannot honestly be said even, by the elder who most conscientiously forgets his own youth, that failure to win is anything but bitter. Gentlemen, to you who have toiled hard and been beaten I offer not the mockery of the suggestion that honest defeat is a pleasure in itself, but downright common sympathy. I have been in your plight many a time, and I know that it hurts. The best consolation is that which comes easily to every Briton because we are a race of sportsmen.

It is a comfort to us to know that we beat the world for contentment in defeat, and that without defeat there would be no victories.

The use of the word "student" in our country is an interesting one. Gentlemen of the Press often misuse the word, and apply it to schoolboys and college men of all kinds. They are quite correct from the mere dictionary point of view, but they defy the common usage.

It happens that in practice we almost entirely confine the word to men who after general schooling have set themselves to the acquisition of some pursuit of their own choice. In other words, the student is a volunteer, not, like the schoolboy, a conscript in the army of learning.

That is rather a happy thought, I think, and it leads me to point out, in conclusion, that no one should ever be an architect except of his own free will. Fortunately, very few are.

It is my duty to warn you against architecture as a career. Now my duty is done. Now what is your duty? If your conscience tells you there is truth in what I say, take it to conscience. But if you have any pluck don't take any notice of my remarks.

A vote of thanks to Mr. Waterhouse was then briefly proposed by the Vice-Chancellor of Cambridge University and seconded by Mr. E. P. Warren.

The President then made the presentation of prizes and studentships, 1922.

Essay Prize.—A Certificate of Honourable Mention was handed to Mr. Herbert J. Harding, A.R.C.A., for his essay on "The Imaginary Architecture of Literature," submitted in competition for the essay prize under motto "Panic Fear."

The Soane Medallion.—The Soane Medallion was presented to Mr. Alfred John Brown for his design for a central group of buildings for a modern non-residential University, submitted under the motto "Per Angusta." A Certificate of Honourable Mention went to Mr. Thomas E. Scott, A.R.I.B.A., for his design submitted under the motto "B Minor."

The Owen Jones Studentship.—The Studentship Certificate was handed to Mr. W. J. Knight, A.R.I.B.A.

Saxon Snell Prize.—A Certificate of Honourable Mention and cheque £5 was presented to Lieut. K. H. Read, A.R.I.B.A., for his design for an asylum for 200 aged and infirm poor, submitted under the device "Grenade."

Ashpitel Prize, 1921.—The books selected by Mr. L. W. Ingham, A.R.I.B.A., of Dublin, Ashpitel Prizeman 1921, were on the table.

Mr. Ingham was unable to be present.

Mr. Theodore Fyfe, F.R.I.B.A., then proceeded to read his "Review of the Works submitted for the Prizes and Studentships 1922."

In commenting upon the Essay Prize Mr. Fyfe drew attention to the conditions, which state that "competitors will be expected to make a useful contribution to knowledge by accurate research, so that the essays can be accepted as authoritative statements on the subjects dealt with." That important suggestion had been largely ignored in the present instance; and future students should be warned against choosing subjects which are matters of opinion, and not matters of fact. Two of the six essays had no footnote references whatever, two more had only seven such references, and a fifth, out of thirty-eight references had only two, which are to architectural works. Obviously, the spirit of research is not quite so profound as it might be. The Essay Prize in the past has given some very fine studies of real value to the Institute. There are still many subjects awaiting good treatment—the facts of any of our traditional English building forms in a particular district, the treatment of features and accessories such as spires, lead-work, cast-iron work, wrought-iron work, grates, floor-tiles, &c., &c. Apart from their subjects, the essays this year were generally meagre in quality.

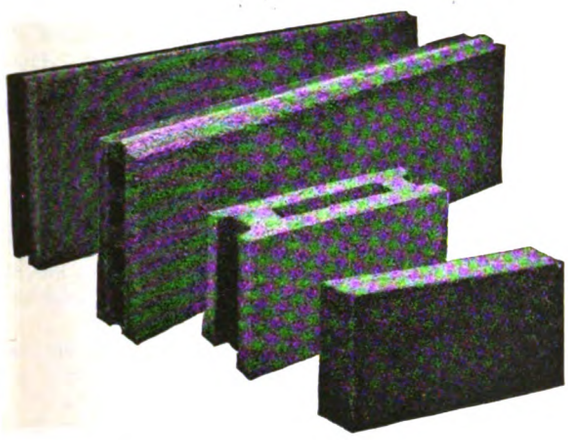
The fact that the Pugin studentship had no entrants seemed significant that the study of mediæval work is on the wane. Personally, said Mr. Fyfe, he believed the study of mediæval forms was as valuable to the architect as that of Greek to the educated man. There was, perhaps, some misapprehension of the meaning of the term "mediæval" among students. It really includes everything, great or small, in this country, after Roman work up to and including the reign of Elizabeth; it includes, therefore, the basis of all English domestic work, and its study is absolutely necessary for the proper education of an architect.

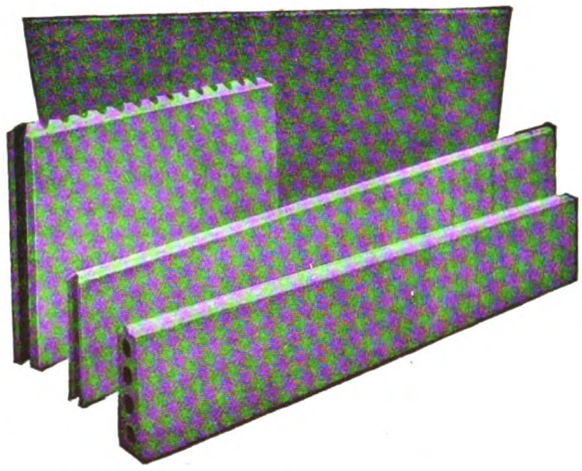
The Owen Jones studentship affords a very welcome exhibition of fine and effective draughtsmanship and colour. The holder, Mr. W. J. Knight, has six strainers, full of most interesting work. His design-subject is also very good, if a little monotonous in decoration, one feels that the base of the building, decorated as a whole, should be free of breaks altogether.

The fact that only three designs were sent in for the Soane Medallion may be due in part, said Mr. Fyfe, to the unmanageable nature of the scheme on paper. It might be a good thing if the Committee that sets the design-subjects for prizes in each year would arrange for one of their members to work out the content of the subject on paper, possibly in some cases reducing the scale of the general drawings to one-sixteenth inch instead of one-eighth inch to a foot; but in any case satisfying themselves that drawings of larger size than antiquarian are not required. The entrants for this year's prize for "A Central Group of Buildings for a Non-Residential University" were to be congratulated in tackling the subject under the conditions at all, and two of them put their material most beautifully on the paper. It was perhaps impossible to expect that they could illustrate their designs fully. The winning design by Mr. Alfred J. Brown has a well-conceived layout, and places the central group of buildings in a commanding position. Having gone so far the designer might usefully have turned the central group round, so that the lecture-theatre faced the faculty square and the court of honour obtained its true value as an axial approach. The design placed second, by Mr. Thomas E. Scott, has not secured such an attractive layout, and it is much to be regretted that this shows all the buildings in block wash, so that there

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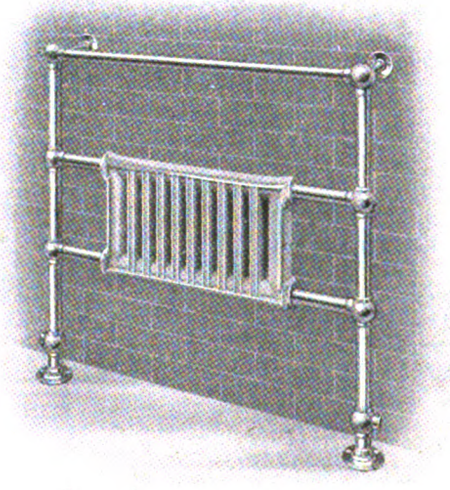
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is really no complete drawing which enables one to see the scale of all the relative parts of the scheme. The moral of this year's Soane Design to students must be that it is most inadvisable to design a large scheme without setting it out fully. The whole must be visualised and drawn out to a uniform small scale before any enlarging is attempted.

The Henry Saxon Snell Prize has not been awarded. Of the two designs submitted only one could be considered as in the running.

For the Grissell Medal there were four entrants, but the Committee were unable to make an award. The thanks of the Institute are due to the Air Ministry for their co-operation in setting the subject: "A Mooring Mast for an Airship in connection with an hotel." Owing to some misunderstanding one essential condition of a proper air-mast—that there should be no buildings immediately round its base—was not a part of the conditions as set. Of the four designs one got clear of this disability, but the ferro-concrete was both faulty and unnecessarily heavy. It was interesting to note that one of the designs was purely steel-construction engineering, and this suggested that possibly every alternate year the Committee might permit a competitor to collaborate with an engineer in the production of a design, as this should usefully promote mutual co-operation and good fellowship between the two professions.

Mr. Theodore Fyfe thus concluded his address: "This was not a year for either the Tite Prize or the Measured Drawings Medal, but even so one would gladly have seen a better display of designs and drawings. All of us must silently realise one great cause for a small exhibition, but if there be any other cause—some chance word or some passing fashion perhaps—which may have led intending competitors to turn the other way, I should like to say a word in conclusion as an older student to younger students. The Institute prizes have a great and splendid tradition which no slighting on your part can diminish or annul. There is one short period in your life, and one only, when you can compete for them, and if you do so you are always the better for it, whether you win or lose. These galleries have often housed great and memorable exhibitions of students' work, and I look confidently to the time when we shall have such vivid exhibitions again, and, if we play our part aright, to a time when the wayfaring man will come in his thousands to see them. You students, in the fulness of the measure of your capacity can contribute to that 'Joy in widest commonalty spread' of which Wordsworth spoke; and surely there never was a time when it was more necessary to show that art, in the fullest meaning of that word, is, as expressed by a modern thinker, one of the great values of life. Find time, then, in the course of your career to enter for one or more of the Institute prizes, and thus do your part to sustain a fine collective tradition of beautiful things."

A vote of thanks to Mr. Fyfe was proposed by the President.

It was announced that the Council have decided to recommend to His Majesty the King that the Royal Gold Medal should be conferred upon Mr. Thomas Hastings, of New York.

The following are notes from the minutes of the Council meeting:—

Higher Buildings.—It was decided that the question of higher buildings should be discussed at the general meeting on March 6. The London Building Acts Committee was thanked for its services and discharged.

The Victoria and Albert Museum.—It was decided to urge the authorities of the Victoria and Albert Museum to return to the hours of opening in force before the war.

Exhibition of British Architecture in Paris.—The Council decided to undertake the financial responsibility for the Exhibition of British Architecture at the Paris Salon in the summer of 1922.

Architects' and Surveyors' Assistants' Unemployment Insurance.—A sum of £25 was voted to meet the expenses of preparing the scheme for an Unemployment Insurance Society.

The Cambridge School of Architecture.—A donation of £50 was voted in aid of the funds of the Cambridge School of Architecture.

Concrete Institute.

The annual dinner of the Concrete Institute was held on Thursday, February 2, at the Savoy Hotel, London. Mr. E. Fiander Etchells, A.M.Inst.C.E., A.M.I.Mech.E., Hon. A.R.I.B.A., President of the Institute, was in the chair.

There were about 250 ladies and gentlemen present. Among the guests were Lord and Lady Riddell, Sir Alfred Mond, Bart., Dean Inge, Sir Alfred and Lady Robbins, Dr. Cato Worsfold, M.P., and Mrs. Worsfold, Mr. and Mrs. G. Topham Forrest, Mr. H. D. and Miss Searles-Wood, Mr. R. B. and Mrs. Chessum, and Brig.-General Sir Henry Maybury.

After the loyal toasts had been honoured, the toast of "His Majesty's Ministers" was humorously proposed by the President.

The Rt. Hon. Sir Alfred Mond, Bart., P.C., M.P. (Minister of Health), in his reply, said that as a former First Commissioner of Works he claimed to know a good deal about the importance of concrete, for that Department erected a larger number, almost the greatest number, of concrete structures, and even coke-breeze partitions, than any other individual Department or firm in the history of the world. At the present moment he was more occupied with the cares of peace—or at least, such peace as the country was permitted to have. Everyone must wish there was more peace throughout the world than there is to-day. It must be the ardent desire of all to see again a calm sea, a blue sky, and the ship of State pursuing an even keel across untroubled waters. It was an anxious responsibility for those who were endeavouring, either as captain or crew, to steer that ship. A critic's duty was, of course, to criticise, though one sometimes wished the critics had obtained more knowledge. We were too modest as a nation, and people were unduly depressed. To know the position this country really holds it was necessary to go outside it. Other countries appreciated much more justly the steadfast courage and the quiet and calm manner in which we passed from war to peace. However disappointing the fact may be, we had not yet got back to normal conditions. But we were the only country in Europe which is paying its way. We were looking after those who have sacrificed themselves for their country. It could be claimed that we had done tasks stupendous enough to appal the stoutest heart. This country alone since the war had retained one Prime Minister and one Government in power to conduct its affairs. He did not claim that no mistakes had been made or that the course had never been shaped according to circumstances. But the credit of this country now stood higher than almost at any other time in its history. That was largely due to common sense of the British people, who had realised the enormous advantage of leaving those who knew the difficulties to represent them continuously in the councils of the world. It was only necessary to look to Washington, where a conference had been held unequalled for importance in the history of humanity, and the wide-reaching results of which for the future were but dimly apprehended. This country now stood as firm as a rock in a quaking world. England was firm on her foundations, reinforced right through, with no weak trusses or improper stresses, no tendency to sag, watertight, comfortable, cushy, and strong. To keep it so the Government would bend all their energies, and he had no doubt they would succeed.

The Right Hon. Lord Riddell, in proposing the toast of "The Concrete Institute," gave warm praise to the Secretary, Captain M. G. Kiddy, whose admirable energy was proved by the way in which day after day he had sent him fresh literature concerning the Concrete Institute. He (Lord Riddell) had had an extensive

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experience of institutes like theirs, and he had long been of opinion that they formed one of the most useful and admirable phases of the professional and industrial life of this country. On reading their President's recent address he had discovered a surprising fact—namely, that it was impossible to touch any phase of human activity, whether gas, concrete, engineering, or electricity, without finding our countrymen at the top, and that they always had stood at the top. Most people had never heard of those brilliantly able Englishmen. England, it would appear, had ever been in front in the matter of concrete. A recent visit of two months to America had shown him that his own country was just as efficient. Their President was a typical British professional man.

Mr. E. Fiander Etchells, the President, devoted the greater part of his reply to a humorous picture of the making of a concrete building by organised labour.

Mr. J. Ernest Franck, F.R.I.B.A. (Vice-President), proposed the toast of "The Guests."

The Very Rev. W. R. Inge, C.V.O., D.D. (Dean of St. Paul's), and Sir Alfred Robbins responded.

During the evening there was a musical programme.

L.C.C. Housing Policy.

The London County Council this week considered the general aspects of the housing problem in London. A report prepared by the medical officer and valuer showed that, owing to the decision of the Government to curtail the State-assisted housing scheme in consequence of the financial position of the country, the original intention of the Council to erect about 29,000 dwellings was vetoed and the number reduced to 8,962, including 182 tenements. Since 1919 the Housing Committee assert that practically no houses have been provided, except by local authorities, public utility societies, and by private enterprise with the aid of the Government subsidy. As regards London, the number of houses comprised in tenders accepted before October 1921 is 12,750, of which 3,774 are completed, leaving 8,976 to be provided. The erection of an additional 1,769 houses by the Council has since been provisionally approved.

The Council's officers express the opinion that the building carried out since 1919 has not met the growth of requirements, and that it is difficult to say whether completion of the approved houses with the next eighteen months will have the effect of reducing the shortage.

Mr. P. A. Harris, commenting on the Housing Committee's recommendation that a copy of the report be sent to the Minister of Health, moved the addition of the following words: "And that he be asked, in the light of the facts and figures contained therein, to reconsider his decision to curtail the Council's housing operations at Becontree and Roehampton." Taking the very worst year before the war, said Mr. Harris, the number of houses erected by private enterprise and municipal undertakings averaged about 8,000. Although building had ceased for five years during the war, the number of houses built in Greater London since 1919 had only averaged 7,500. Even before the war house-building was not keeping pace with the growth of the population and general wastage of buildings, but the position to-day was considerably worse under the Government prohibition on building.

With regard to the cost of building, Mr. Harris said that the last estimates received showed no less a reduction than 33 per cent. on previous figures. There was every reason to believe that next summer even better terms would be obtained. The Council was already in possession of sufficient land, and was bound to fulfil its duty as the housing authority for London and bring all possible pressure on the Ministry of Health to remove his veto. The original scheme had been conservatively and cautiously worked out, and they should now be allowed to proceed with it.

The amendment that the Minister of Health be urged to withdraw his veto was negatived on a division by fifty-six votes to thirty-seven.

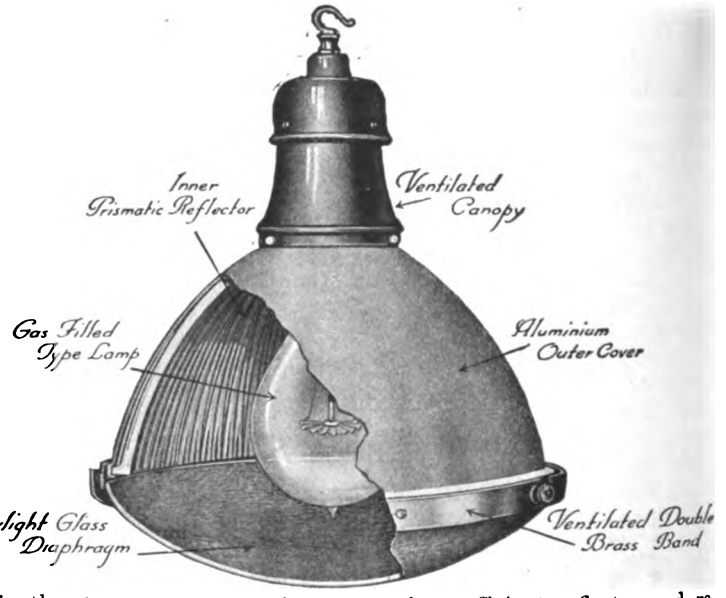
Colour Matching by Artificial Light.

Almost all forms of artificial light are very yellow and colour sensations are thereby rendered less sensitive, thus making it difficult to see anything in its true colour value. This yellowness is only properly appreciated by direct comparison of artificial light with the pure whiteness of daylight, and is due to the lower temperature of the sources of artificial light as compared with the higher temperature of the source of daylight—the sun.

In order to correct the light thus given from an artificial source to the equivalent of daylight it is necessary either to add the proper amount of violet and blue, &c., or to take away the proper amount of red and yellow light, &c. As the former method cannot be carried out satisfactorily the latter course must therefore be adopted, and light must be sacrificed to obtain the necessary correction.

To make this correction, 60 per cent. of the light which reaches the daylight screen is absorbed, therefore, as much as possible of the total light from the lamp should be transmitted through the screen to give adequate results for the energy expended.

The light rays from an electric lamp are emitted in all directions around the lamp, and just as much of the light is given in the upward direction as in the downward direction. Fully 75 per cent. of the total light from the bare lamp is given out in the zone from 60 degrees from the vertical to 180 degrees (Zenith). To utilise the maximum amount of the upward and downward light it is necessary to collect it by means of an efficient reflector and redirect it through the daylight screen.



The above is a diagrammatic sketch of these daylight units from which it will be seen that they are a combination of the highly efficient Holophane prismatic reflector with Chance's daylight glass.

They have been produced after long and costly scientific research, and represent a recent and most successful effort to obtain with accuracy, simplicity, and comparative cheapness the required correction of the gas-filled electric lamp to a colour composition equivalent to daylight.

The variations between different kinds of daylight are much greater than is generally recognised. Sensitive colours which match in ordinary daylight are thrown out of match by direct sunlight, and in the reverse direction by north light from a blue sky.

Holophane daylight units therefore not only provide a light for matching at night, but give a more reliable average daylight than is often obtainable, particularly in towns.

We have just received a pamphlet issued by Holophane, Ltd., of 12 Carteret Street, London, S.W., containing a description of the new Holophane daylight units.

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VOL. CVII.—2774. THE ARCHITECT FEBRUARY 17, 1922

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The R.I.B.A. Registration and Unification.

As we stated in a Note last week we are in a quandary as to the questions now under discussion at the R.I.B.A. dealing with the unification and registration of the profession, the whole issue being made difficult because the bulk of the profession is clearly of opinion that it has something tangible to obtain from registration, and that a measure of registration can be obtained. We believe neither of these hopes stand on a solid superstructure, and that therefore any policy raised on such foundations is built on a quicksand.

We are quite sure that the public cannot be convinced—and such conviction is allowed by all to be essential—that their interests will be better protected by a measure of registration than they are at present by the various building by-laws and the control that is vested in the hands of officers representing urban and rural authorities; while it is equally clear to us that it is impossible to interfere with the freedom of action of the great number of men who at present call themselves architects, many of whom have no right to the title if professional training or technical efficiency is taken into consideration.

Even if the right to use the title "architect" were as a result of a wide measure of registration denied to those who had not joined the Institute, we should probably have a new class of outside men calling themselves constructional experts or some such name who would advertise their willingness to make plans and do the work of the architect at reduced fees; and we can be quite certain that many of them would obtain such work, and that we should have gained little or nothing by the sacrifice of opening the doors of the Institute wide enough to include all those who have heretofore called themselves architects. What we are really up against is the fact that a large section of the public do not believe sufficiently in the advantages of employing bona-fide professional men to be willing to pay their fees—in other words, the effective bettering of our profession must come not from legislative measures but from the growing belief of the public in the advantages of employing architects. At present a considerable section of the public does understand that in employing a member of the Institute they are employing a man of a certain status, but if that body is enlarged to include all men at present practising the distinction will cease to exist for a considerable number of years. The result will be precisely that which would ensue if the sixth form of a large public school were enlarged to include first-form boys—the value of the distinction would be largely lost, and the gain to the profession—which is about as solid and tangible as the reflection of the bone for which the dog dropped the substance—is the very doubtful possibility that Parliament might be persuaded to reserve the title architect for those men who should, in the future, be able to satisfy the conditions imposed by the R.I.B.A. or some other authority. But, as we have shown, this would be useless unless the public had been convinced at the same time that it was wiser to employ a qualified architect, and we cannot see that a measure of registration would do anything to convince them.

But while we hold these views it is undoubtedly true that a majority of practising architects are quite ready to drop their own bone for the reflection in the stream; and that being the case, the Council of the Institute seem to us to have adopted the only course open to them by appointing a committee to hammer out details, and it is doubtful whether their opponents have any real *locus standi* in raising objections.

But while we feel the objections to the wide measure of unification proposed solely with the object of making the promotion of registration possible, we are very strongly in favour of the unification of the Institute and Society, the members of which are qualified architects, as we hold that such unification would do away with the somewhat undignified spectacle of two bodies, whose reputes, aims, and objects are similar, and each of whom issue very similar appeals to their members on the same points. In addition, expenses of administration would be saved, and as all the local societies are now affiliated with the R.I.B.A., that body would be the unchallenged head of the organisation intended to promote the interests of architecture and the government and regulation of our profession. This can be effected without the admission of a number of unqualified men into our ranks, while we believe that the most ardent registrationists might be converted to the conviction that they are following a will-o'-the-wisp by consulting competent legal opinion. Our view is, we know, that of a minority at present, but we are convinced that it will ultimately be accepted by the majority, and we would sooner see architects spare themselves the trouble of tilting against windmills.

We would therefore advocate the unification of the profession by the inclusion of competent and qualified men, which simply comes down to the amalgamation of the Society with the Institute and nothing else; all further accessions to our ranks should, we believe, enter it through the gates of qualification or examination.

Having gone so far it would be reasonable to find out whether there was any chance of the body so augmented and strengthened obtaining an entry into the promised land of registration. If not it would seem to be a mistake to go further. If in time to come the status of the architect is improved in the public estimation registration might come into the field of practical politics, but in this case we should have obtained all we want without registration, which would be useless and unnecessary to us.

The simile of the dog who drops the bone he has to secure its reflection seems to us to exactly typify the present position, but there is no doubt if architects were polled on the subject a large majority of them would be keen on following the dog's example, and if so we doubt whether the Institute can proceed in any other manner than the one proposed.

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Illustrations.

ALTERATIONS TO "UNDERHILLS," BLETCHINGLEY, SURREY By Robert P. Oglesby, Architect (see Plan, p. 125).
ARCHITECTURAL ASSOCIATION SCHOOLS: FOURTH-YEAR STUDENTS' WORK. Design for a Cinema, by H. L. Curtis.

Notes and Comments.

The late Major Pawley.

The death of Major Pawley removes a remarkable figure from the stage of our lives. He may be described as one who had speculative instincts in his blood, and succeeded at different periods of his life in amassing considerable wealth, to be dissipated again in periods of ill-luck. We hardly think of him as an architect, and it is doubtful if he had much accurate knowledge of styles or architectural terms, but he succeeded to an astonishing extent in obtaining the confidence of certain sections of the public. This was never more strikingly shown than by the fact that he actually induced large numbers of well-known men to support his colossal Westminster schemes, including that white elephant—the Memorial Shrine, which was to dwarf the Abbey. We have no doubt that he was throughout thoroughly convinced of the feasibility of his proposals, which is not perhaps so surprising as the fact that he obtained the support of many men of culture and understanding. But we hope that both Major Pawley and his schemes may now rest in peace, while he has shown us what unlimited enthusiasm and confidence can do, even when unaccompanied by critical understanding and knowledge.

The R.I.B.A. Certificate Books.

Architects have frequently complained of the form and character of certificate books issued for their use, and we are glad the Practice Committee of the R.I.B.A., on the suggestion of Mr. Francis Hooper, have taken up the matter. The production of the book was delegated by the Council to the members of the Practice Committee, who appointed a sub-committee consisting of Mr. Delissa Joseph, Mr. T. Henry White, and Mr. Horace Cubitt. We are glad to see that a very simple form has been adopted consisting of a certificate with a form of receipt annexed to it to be filled in by the contractor. Books containing one hundred of these forms are for sale at the R.I.B.A., price 8s. 6d. The lettering is good and clear, and a pleasant change from the usual forms now obtainable. These have been so bad that many architects have had special forms printed; but we think that all will be satisfied with what has now been sanctioned by the R.I.B.A.'s Practice Committee.

Irish Architecture.

It is to the good that the "Irish Times" should admit "that in Ireland, and notably in the cities of Dublin and Belfast, much of the architecture is appallingly bad; but to blame the British Government for our own lack of artistic taste is hardly fair." We quite agree with this, but suppose that in Ireland of to-day it needs courage to enunciate even such plain truths. Unfortunately, to-day our rural districts are precisely those in which one sees the worst new work, and contact with nature does not seem to have any influence on æsthetic sensibility. Certainly, modern Irish building—it would be incorrect to call it architecture—is a shock even to one who is well used to the atrocities of our provincial towns, while it is almost impossible to bring home to one who has not been in Ireland the utter tastelessness of the enormous mass of church building which is being erected in Ireland. One has to imagine the worst things of the Gothic revival here of fifty years ago and to conceive how they could be made still worse before we can get any idea of what is accepted throughout the length and breadth of Ireland. We hope that within the next fifty years all this may be changed; but meanwhile regret in many ways that almost every evidence of the last century cannot be destroyed, so that Irishmen might once more start from the bases of their eighteenth-century architecture.

Youthful Critics.

An experiment has been made in Scotland, where members of a Boys' Brigade in Edinburgh have been invited to make a tour of the Galleries and give their criticisms. Some of these are amusing.

The war pictures especially attract attention. Sargent's water colours are prominent in the lists. No. 39, for example, is thus described:—"The picture tells you of the time in the Great War when the soldiers were resting in a little town in France called Arras. When the soldiers were resting in peace, they were busy singing and laughing joyously, and at the same time they were watching for the enemy." Another states that he includes No 39 in the list "because the colours are good, and it is very plain to see; also, it makes you take a notice of everything"—rather a drop for the airy impressionistic school. Another of Sargent's pictures, "Thou Shalt Not Steal," is freely annotated. One boy naïvely adds the comment:—"The name of this picture is the eighth commandment, but it was not very well observed during the late war." Of a picture in Gallery No. 3 it is observed—"This is the most beautiful picture I have ever seen, and is of the most beautiful colours." Of a portrait of a lady a boy of fourteen writes:—"The picture of this lady is so realistic that her sharp keen eyes seem to pierce me when I look at her." The same boy selects for comment a woodland scene, "because it turns my thoughts from the present time to part of the joy that is past." Undoubtedly some of the youths have a poetic and imaginative impulse which they try to express. A portrait prompts one of them to observe:—"Her concentrating eyes appear just like Mars or Jupiter on the darkest night. The colours in the picture are just like the notes of music."

We do not know whether it is proposed on the strength of criticism revealed to allow children to act on hanging committees.

Forthcoming Events.

Monday, February 20.—Royal Institute of British Architects. Meeting at 9 Conduit Street, W. Paper by Mr. Arthur J. Davis, F.R.I.B.A., entitled "The Internal Decoration of Ocean Liners." 8 p.m.

Tuesday, February 21.—Liverpool Architectural Society. Meeting at 13 Harrington Street. Paper by Mr. E. R. F. Cole, A.R.I.B.A., entitled "Colour and Architecture." 6 p.m.

—— Medical Officers of Schools Association. Meeting at 11 Chandos Street, Cavendish Square, W. Discussion to be opened by Mr. George H. Widdows, F.R.I.B.A., entitled "The Ideal Class Room." 5 p.m.

Wednesday, February 22.—Royal Society of Arts. Meeting at John Street, Adelphi. Paper by Dr. Alexander Scott, Sc.D., D.Sc., M.A., F.R.S., entitled "The Restoration and Preservation of Objects at the British Museum." 8 p.m.

—— St. Paul's Ecclesiological Society. Meeting at 7 St. Andrew's Street, Holborn Circus, E.C. Paper by Mr. W. Gawthorp, F.S.A., Scot., entitled "Some Notes on Repairing Ancient Brasses." 8 p.m.

—— British Electrical Development Association, Inc.—Annual General Meeting and Luncheon at the Hotel Cecil, Strand, W.C. 1 p.m.

Thursday, February 23.—Architectural Association. Smoking Concert at 34-35 Bedford Square, W.C.

—— Concrete Institute. Meeting at 296 Vauxhall Bridge Road, S.W. Paper by Mr. H. Kempton Dyson, M.C.I., entitled "What is the use of the Modular Ratio?" 7.30 p.m.

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Royal Institute of British Architects.

The following are notes from the minutes of the Council meeting, held on February 6:—

Architects and the National Housing Scheme.—The Council have received from the Official Architects' Association and from a large number of the allied societies communications supporting the action taken in the matter of the recent attack upon architects in connection with the National Housing Scheme.

R.I.B.A. Conference at Cardiff.—The draft programme of the Conference at Cardiff on June 8-10, 1922, prepared by the Council of the South Wales Institute of Architects, was approved.

The Late Mr. Ernest Newton, R.A., Past-President.—The Council passed a resolution of the deepest sympathy and condolence with the family of the late Mr. Ernest Newton.

The Concrete Institute.—Mr. E. Fiander Etchells, President of the Concrete Institute, was appointed an Advisory Member of the Board of Architectural Education.

Retired Fellowship.—Mr. Wm. Bakewell (F.) was transferred to the Retired Fellowship class.

Nominations for Membership.—The nominations of six candidates for the Fellowship and eighty-eight candidates for the Associateship were approved.

The Effect of the New Agreement as to Wages.

By G. Flint Clarkson, A.R.I.B.A.

With the recent drop in wages the rate in London for mechanics reaches 108⅔ per cent. above 1914—namely, 2s. per hour, as against 11½d. Unskilled labour is, however, considerably higher in proportion, being 137.5 per cent. above the pre-war rate, or 1s. 7d. per hour, as against 8d. Owing to the violent fluctuations and abnormal conditions that have prevailed for some years, when preparing approximate estimates for building operations it is still customary to return to the 1914 standard and estimate the work at a ratio above this, according to one's knowledge of building prices as a whole, or, if one material, such as Portland cement or steel, predominates, varying the general rise in accordance with the particular rise or fall of this material. In every building the proportion of skilled and unskilled labour varies considerably, but, taking average conditions, the expense of labour per hour can, after February 1, be taken in London as 119.5 per cent. above the rates in 1914, the last revision making a difference of 2.25 per cent. Unfortunately, these figures do not give an entirely true perspective of the situation, as output, although decidedly improving from the conditions ruling a few months ago, is not as great as in 1914, and the forty-four-hour week, to which, from the ballot figures recently published, the unions appear to adhere very strongly, involves increased expenses in many ways.

The relationship of the rates for skilled and unskilled labour in 1914 was 100 to 70; the greatest difference now agreed is 100 to 75, but at present the relationship in London is 100 to 80, owing to the sharp degrading of unskilled labour in the autumn of last year, the relationship having been as high as 100 to 90 during the period of highest wages from May 1920 to May 1921. The drop since this period in London has been 14.3 per cent. and 24 per cent. for skilled and unskilled labour respectively, but as the reductions have been made at uniform cash reductions throughout the country the fall has naturally been considerably greater in proportion in the less populous centres.

Mr. H. D. Searles-Wood, Vice-President of the R.I.B.A., and Mr. J. Arthur Smith, F.R.I.B.A., have been appointed to represent the Royal Institute of British Architects at the Royal Sanitary Institute Congress, Bournemouth, July 24-29.

The day for receiving works submitted for the Royal Academy Exhibition is Friday, March 24, between 8 a.m. and 10 p.m. Labels and forms can be obtained (during the month of March only) from the Academy. Not more than three works may be sent by any one artist.

Competition News.

In the open competition for designs for Kirkcaldy War Memorial, in which Mr. A. N. Paterson, M.A., A.R.S.A., F.R.I.B.A., President of the Institute of Scottish Architects, was adjudicator, the following were successful: First prize (£50), John S. Mackay, A.I.S.A., 80 Finlay Street, Dennistoun, Glasgow; second prize (£30), Jas. M. Honeyman, A.R.I.B.A., Glasgow; third prize (£20), William Williamson, Lic.R.I.B.A., Kirkcaldy.

Mr. John W. Simpson, PP.R.I.B.A., has made the following award in the Wolverhampton War Memorial competition: First premium (150 guineas, Mr. C. T. Armstrong, 32 Eversley Road, Bexhill; second premium (100 guineas), Messrs. Ebbs and Warren, Chelsea; third premium (50 guineas), Mr. Wilfrid Bond, Grantham. The designs by Major C. Hugh Corlette, London, and Messrs. T. Ridge and R. E. Haynes (Shayler and Ridge), Oswestry, receive honourable mention.

The promoters of the Auckland War Memorial Competition have asked the Royal Institute of British Architects to form a Register for intending competitors, so that information received from Auckland may be distributed to the competitors without loss of time. All architects who intend to take part in this competition should send their names and addresses as soon as possible to the R.I.B.A., Secretary.

The Seaford Urban District Council, having purchased for a recreation-ground an extensive piece of land at the west end of the Parade known as "The Salts," offered prizes of £50 and £25 for lay-out designs. The competition attracted thirty entrants, and the first prize has been awarded to Mr. Philip Shuter, of Glyn Garth, Le-Brun Road, Eastbourne, and the second has been secured by Mr. S. V. Hart, of Walthamstow. The first prize scheme provides for a bandstand and shelter, cricket and football grounds, bowling greens, a miniature golf course, tennis courts, a children's playground, a yacht pond, a tea-room pavilion, a swimming bath, and a Kursaal.



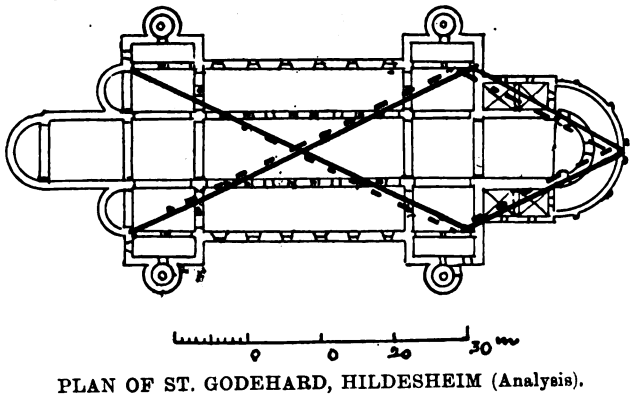
The tablet illustrated was erected in the board-room of a City business house to the memory of the men of their staff who died in the war. The centre plate, in cast bronze, is enriched with a modelled panel depicting the Angel of Victory and Peace calling the armies to halt and treading underfoot the emblems of war, with the sun of a new day rising in the background. The military figures show the Red Cross and other services in which the memorialised were engaged. The names of the men are in raised letters, with a dedicatory verse illustrated by a frieze of cherubs' heads. The frame is in oak, simply carved. The work was done by E. J. & A. T. Bradford, of Borough Road, S.E. 1, under the superintendence of the architect, the late Mr. Edgar Stones.

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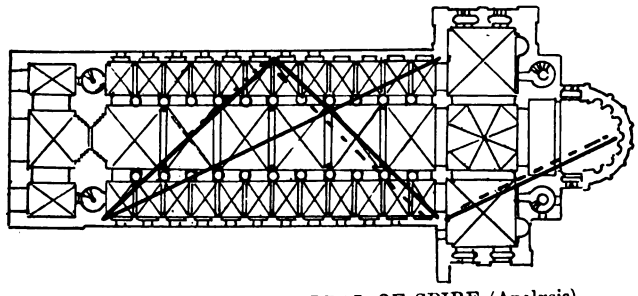
"Ad Quadratum." *

To say that we have made a searching analysis of this very diffuse and rambling work would be untrue, but we have sufficiently examined it to form the conviction that the author has not proved his case, but has built a theory upon what common sense would tell us is only what we might expect—that great mediæval Gothic buildings resemble one another very closely in certain general proportions, and that these general resemblances were intentional. If a number of billiard-rooms containing single tables were accurately measured their dimensions and proportions would be found to be closely similar, and it is just as natural to assume that the proportions of length to breadth in a number of great churches should be found to closely approximate to the same ratios, and that the heights of nave and aisles should also show a close and intimate connection with certain ratios of proportion of their plans. But such close ratios of proportion need not necessitate an elaborate system of geometrical setting out as is assumed—but we hold not proved—by Macody Lund.

Our reasons for doubting the whole of the author's premises are two—their inherent improbability and the fact that many of the scale diagrams which the author gives to prove his thesis are incorrectly drawn; the error in every case being one which goes to help the author's theories. Out of a great number of such diagrams we reproduce two, in which we have indicated the correct setting out by dotted lines in the author's diagrams. It may be urged that the divergencies are small, but when we are dealing with mathematical quantities such errors are fundamental. What should we say of a man who said that twice $2\frac{1}{8}$ equalled $4\frac{3}{8}$ except that his statement was an obviously mathematical falsity? And if we found such a statement made in a work dealing with mathematics we should be justified in throwing aside the book as being valueless, and we hold that by similar tests Mr. Macody Lund can, and should, be dismissed as unreliable. He has, in fact, assumed a theory and ridden it to death, and when, as in the case of Cologne Cathedral, he finds that it does not square with facts, he ingeniously says that the mediæval designer has made a mistake, and gives us an elevation of the Cathedral as it should be according to what he assumes was a fixed and unvarying rule! He also calmly tells us that if we assume that some of the Norman cathedrals should have had additional aisles they would conform to the cast-iron rules he lays down! We would here say that if every cathedral in Europe had been designed according to the system laid down by Macody Lund there would be no divergencies, but as they were not, the number of cases which his theories accurately fit would probably be found to be small.



PLAN OF ST. GODEHARD, HILDESHEIM (Analysis).



PLAN OF THE CATHEDRAL OF SPIRE (Analysis).

As for the inherent improbability, we ask our readers to consider the cobweb of lines which form Mr. Lund's worked-out diagrams, and imagine the poor mediæval master-builder elaborately settling proportions of every part and detail of a great cathedral by means of pentagons, the *sectio aurea*, and a network of squares and diagonals, and we say with confidence that a man feeling the necessity for such safeguards could not, and would not, have the creative faculty which made the design of a great building a possibility. He would be as hidebound as some poor student of architecture, ill suited for his calling, who, conscious of his unfitness, attempts to apply a number of petty little formulæ to keep him to the straight and narrow path of correct design. It is unreasonable to assume that the master-builders of the Middle Ages, whose work we admire, were such men as these. There must always be units in design, but of a less mechanical kind, such as the dimensions of the stonework procurable, the width and height of the arches it was safe to construct, the character of the vaulting which had been found feasible, and, given these and others slowly ascertained and handed on from one generation of master-builders to another, we should expect what we find—the general resemblance of a great correlated group of buildings erected in the course of centuries for a given purpose. More than this, in any building of almost any style or type it is obvious that a certain proportion of relative width and height must be adhered to if we are to obtain harmony. If we are designing the dividing bars of a sash window we naturally try to make their relative proportions similar in the same building, and it is natural that such proportions should find an echo in the proportion of window and other openings; but these and other evident factors in proportion are, we hold, instinctive to all those who possess any ability or power of design.

It is easy to believe that the Greeks employed subtle geometrical methods to arrive at the proportion of their temples, and the very minute and careful investigations of Mr. Hambridge seem to prove that such was the case, but it does not seem to us probable that the mediæval builders applied geometry to the extent assumed by Mr. Macody Lund, but rather that they allowed themselves a very similar freedom to that which we permit ourselves to-day. We think it would be found possible to take many important buildings erected from the designs of good architects and to lay down a system of proportion which would apply to such designs, but this would not prove that the designer had used any system, but simply that the results produced very generally conformed to a system, and this would probably apply to the work of our forefathers.

Many of the chapters of the book are chiefly diffuse statements dealing with pure geometry which do not seem to us germane to the subject under discussion, while some again would be more fittingly quoted in a book dealing with theosophical thought or a treatise on the Cabalists. In page 143 we are told that "It will be remembered that the ancient world looked upon the Irrational as the imageless expression of the unfathomability of God"; and

"Early in the Middle Ages the science of architecture was a monastic science, and later in the twelfth century a guild science, which was kept secret and preserved solely perhaps by verbal tradition within the guild. It seems evident that the master-builders must have had a suitable term for this wonderful proportion, which had been continually employed in practical work from ancient time; we have seen the Pythagorians considered the teaching of ἡ τομή as divine, nothing is more likely

* "Ad Quadratum: A Study of the Geometrical Bases of Classic and Mediæval Religious Architecture," by Fredrik Macody Lund. Printed by order of the Norwegian Parliament, and published by B. T. Batsford, Ltd., in two volumes. £5 net.

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than that the building guilds inherited the very ancient terms used for the æsthetic qualifications of the geometrical proportion which was always employed in the art of building."

If the book could be re-edited, cut down to one-tenth of its length and illustrated with a few correctly drawn diagrams it would be more easy to criticise it, as it is it seems to us to be the work of one who wishes to obscure issues which are in reality very clear and definite, and who has confused the whole issue by compiling an obscure and voluminous mass of matter which may escape searching investigation because it is wearisome and involved

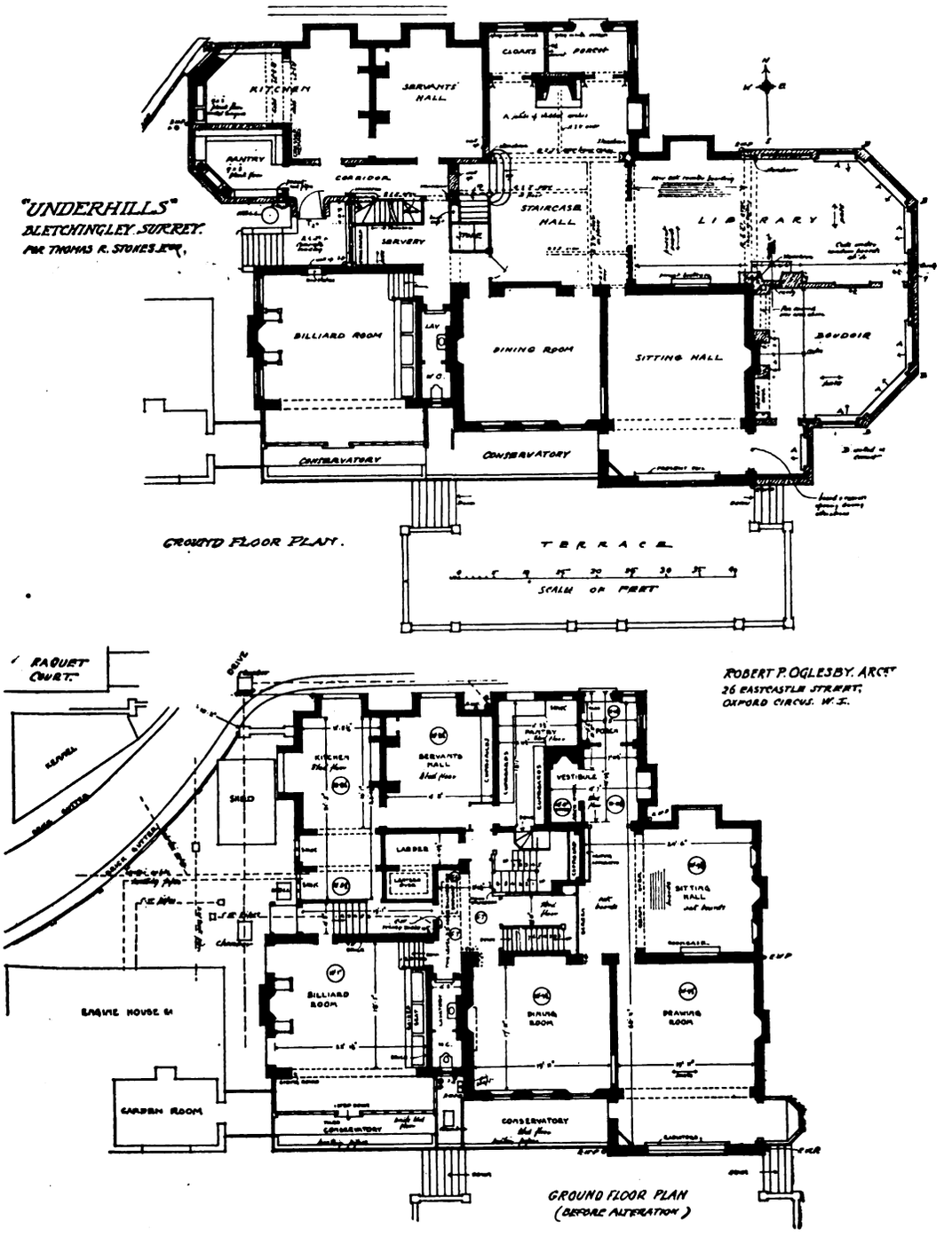
The dotted lines show the divergence between a true setting up based on squares and the lines given in these diagrams, the differences in these and many other instances militating against the assumptions made by the author that the proportions of mediæval design were governed on a geometrical setting out.

The Building Estimator.*

The Estimator, by B. Price Davies, published by the Educational Publishing Co., Ltd., is a distinct advance in the direction of scientific pricing of bills of quantities. The tables of constants are, in the main, clearly set forth, and the explanatory letterpress is kept as concise as possible. The book is so arranged that reference to any item of the mass of information contained in the work may quickly be made when the method adopted by the author to effect this is understood. The volume will be found to be of great service to estimators, although the constants for labour seem to anticipate an output of work greater than is obtained at the present time.

* "The Building Estimator," by Price Davies, F.S.I., M.S.A., M.R.B.I., Associate-Member of the Town Planning Institute, London. The Educational Publishing Co., Ltd., 9 Southampton Street, Holborn, W.C. 1. 12s. 6d. net.

(See Inset Illustration.)



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London Art Galleries.

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At the Grosvenor Galleries, on February 8, opened an exhibition of the work of three artists—Muirhead Bone, A. St. John Partridge, and John Wheatley. This is a satisfactory and well-arranged exhibition. In the first room Mr. Muirhead Bone takes his subjects from Italy—Rome, Pisa, Naples—or carries us to the fjords of Norway in some delightful water colours, or comes to grips with the busy life of the port of Marseilles in five or six studies in which his wonderful drawing of detail, of machinery, crowded vessels, swarming human activity finds its full scope.

But in the Long Gallery, with Mr. St. John Partridge, we find ourselves before a colourist in such subjects as "Near Southwold" and "Remains of the Library at Louvain." In his "Early Morning Effect, Venice," a tempera painting, the white form of the Salute church emerges out of the blue-grey mist. In his "Bridge at Dixmude," which is one of the best, the sunlight falls, white and strong, upon a part of some old Flemish building which has escaped the awful havoc there of the recent struggle, while the bridge itself and the rest of the building is hid in shadow. There is a sort of "bravura" in these studies which seems carried unduly far in that of Montreuil, where the charcoal drawing is left with good effect in the buildings, but becomes too insistent in cloud forms.

Then in the next two rooms we come to the figure in the etchings and drawings by John Wheatley. Some of these drawings in line and wash, such as the "Nude," and again the study for the aquatint, "Nearly Dry," as well as the aquatints themselves, are free and masterly. The next room is entirely colour work by the same artist; and here the sensation is a very pleasant one. We seem to come at once into an atmosphere of warmth and rich colour; and this is, no doubt, partly due to the background, formed of old crimson brocade which has toned perfectly with time, and also to the hanging, of which I expressed my admiration to the management. But the paintings themselves are warm and rich in colour. The seaside figures in "Edith," "Stormy Evening," "The Evening Bathe," and "Noontide," the "Lady in White" wearing a turban, the charming nude of "Flora," beneath a canopy of blue, combine to give the impression which I have just mentioned, and are in themselves sincere and strong.

The St. George's Gallery, situated most conveniently in George Street, Hanover Square, has made an excellent start with a very choice little exhibition of the paintings and water colours of H. Davis Richter, R.I., R.O.I. I have often had occasion to notice Mr. Richter's work in these columns, on the last occasion at the Goupil Gallery, and to express my opinion of its high pictorial qualities. Mr. C. F. A. Voysey, in his "foreword" to the present exhibition, remarks of him very truly that, "while showing a great richness of detail, he retains spontaneity and is never laboured. Architecture he draws in an impressionistic manner, and in sound perspective. . . Many of Mr. Richter's works suggest their fitness as central points in a scheme of room decoration." In approving the above suggestions I may note the broad and effective architectural drawing in "The Portal" shown here; but, of course, flowers are the main feature in this artistic "menu," and in flower painting the artist is at home. His "Floral Group," "Poppies," "The Golden Globe," and "Polyanthus and Wallflowers" may be noted; but he is perhaps at his best in the rich harmonies of "Silver and Gold" and "The Hillside." I have sometimes felt, and I believe expressed, a certain monotony in this artist's flower treatment; but I find nothing of that on this occasion. The St. George's Gallery, under thoroughly experienced management such as that of Mr. Howell and Mr. Tate, has begun well, and promises to be a valuable addition to our galleries in or near Bond Street.

Last week I mentioned briefly the Society of Painter-Etchers, but reserved my fuller notice for the present issue. The exhibition reaches a good level throughout, and some of the aquatints are especially attractive; among these I should select "Moonrise, Westerham," by W. P. Robins; "The Young Moon," by Margaret Kemp Welch; and "Triana Bridge, Seville," by Eleanor Fell—for I imagine that in both these last this process has been used; and, in fact, for several years now Mrs. Fell has devoted her attention to this fascinating side of art. Unquestionably the finest aquatint here, however, is that of the President. In his "Morning Haze in Chichester Harbour" Sir Frank Short gives us a delightful harmony of cool greys. Leonard Squirrell shows here some work in aquatint; but I prefer his mezzotint of "The High Mill," and another mezzotint in which the figure is handled in a masterly way is "Dawn," by R. C. Peter. William Walcot contributes a large and boldly conceived plate dealing with the theme of "Antony in Egypt"; and near this E. S. Lumsden has some good etched portraits of brother artists, "Augustus John, R.A.," and "Frank Brangwyn, R.A.," and Herbert Dicksee some excellent studies of wild fauna, leopards and lionesses. I shall mention lastly a group of architectural etchings all on the same wall and all dealing one way or another with richly carved gateways; these include the "Porch of St. Trophime, Arles," by A. Hugh Fisher, "The Norman Doorway at Lamington, Lanarkshire," by J. A. Ness, that wonderful façade of S. Pablo at Valladolid, by H. Macbeth Raeburn, and two others, "St. Mary's, the University Church of St. Andrew's," and "John Greenway's Porch at Tiverton," this last by H. Gordon Warlow. In all these good and effective use is made of the contrast of shadow and light from arched doorways; but perhaps in none better than in the last-named. Two etchings by the late Claude A. Shepperson, A.R.A., have all that artist's delicacy of drawing and refinement of treatment.

At the Fine Art Society an exhibition of the water colours of Cecil A. Hunt opened last week. The technique of these drawings from Sicily and the English countryside is on a high level, notably in such subjects as "Early Morning, Trappani," "Francavilla, Sicily," "The Appenines," and his subjects from Dorset and Cumberland. The study of a Sicilian road was, I believe, shown in the last Royal Water-colour Exhibition; the present selection is satisfactory, and will increase this artist's fine record in water-colour.

I heard with regret last week of the death in London of Mr. Algernon Graves, after a year's illness. Mr. Graves had a remarkable knowledge of the British school, and after he retired from the firm of Henry Graves and Co., of Pall Mall, in 1907 that knowledge had been at the disposal of Messrs. Agnew. He had been President of the Royal Warrant-Holders' Association and Master of the Cutlers' Company; and in his complete work on "Royal Academy Exhibitors" from 1769-1904, which he once kindly placed at my disposal for research, he added a valuable contribution to art study. I had Mr. Graves' permission to dedicate to him my work on Francesco Bartolozzi, and did so both as a personal friend and as "a worthy inheritor of the great tradition bequeathed to his firm of Henry Graves and Co., Ltd., by their famous predecessors, John and Josiah Boydell."

The new Royal Academicians are Mr. Henry A. Pegram, sculptor, Mr. Robert Anning Bell, painter, and Mr. Maurice Greiffenhagen, painter. The election of these three Associates to the full rank of Academicians is a thoroughly satisfactory one.

S. B.

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Modern Methods in Building Construction.*—V.

By Albert Lakeman, M.S.A., M.C.I.

Derricks and Cranes.—In giving a list of the types of equipment that could be used for excavation work, mention was made of derricks and cranes, and, although their use has been dealt with to some extent in connection with grab-buckets, there are other cases where this type of plant can be used to advantage, and the best example of this will be provided by the case of a deep excavation in a rock soil where it is not possible to adopt a machine which will both cut up and raise the excavated material.

Practically the whole of New York City is built on solid rock, and it will be appreciated that where the rock approaches the surface and a skyscraper has to be erected, with deep foundations and several floors below the street-level, then the excavation becomes a very important part of the scheme. It is useless to attempt the use of steam shovels or drag lines under these conditions, and the rock has to be disintegrated by blasting. The general practice is to drill for the several charges during the day, and these are fired at night, when the danger of accidental flying fragments, causing injury to passers-by, is minimised. This blasting will loosen and partly disintegrate the rock, which is removed the following day, while further drilling is proceeding. When the work is well buried, and precautionary measures are taken, charges are also sometimes fired at midday, when the ordinary workmen have ceased work for lunch.

It is in the removal of the excavated rock that cranes and derricks are used, as these are employed to raise and lower large open-mouth flat-bottom skips or boxes, which discharge their contents directly into motor- or horse-drawn tip-wagons at the street-level. These cranes, derricks, and flat-bottomed skips are quite a feature of New York excavation work, as they have been found to be the most practical and economical method of handling the excavated material.

An illustration of the use of these boxes is shown in fig. 31, where a derrick is being employed to raise the material excavated by hand in a large pit. The soil in this case was not rock, but a hard clay mixed with shale, and hand labour was employed, because all the contractor's mechanical diggers were employed on other more urgent portions of the scheme, which was a large one. The skips are suspended by four chains, one pair being attached near each end, with hooks to eyelets in the straps passing around the body of the skip, and these four chains are brought together over the skip to allow the crane or derrick hook to pick up the load at the one point. The skip, with its contents, is lifted and swung round to the shoot or direct to the wagon waiting to be loaded, and it is lowered down sufficiently to rest on the shoot or wagon, and thus take the weight off the front chains when the latter are unhooked, and upon the lift from the derrick being again applied the back of the skip only is lifted up, and the contents are discharged through the open mouth at the front into the wagon. Several skips are employed with one crane or derrick, to allow the filling to proceed uninterruptedly, as an empty skip is always lowered to the men before the full one is raised. One advantage of these skips is the ease with which they can be filled compared with other receptacles, as they present a fairly large area to the labourers who are filling, and, in addition, the sides and end are low, and only a small lift is required. This last item is an important factor when judging the output of a man employed for several hours continuously in loading up excavated soil for removal.

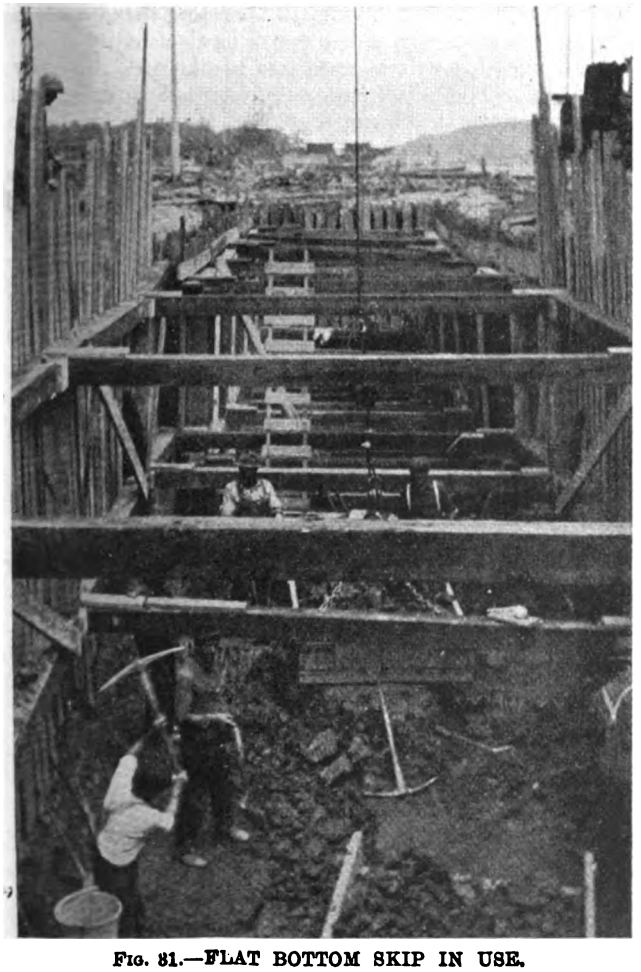


FIG. 31.—FLAT BOTTOM SKIP IN USE.

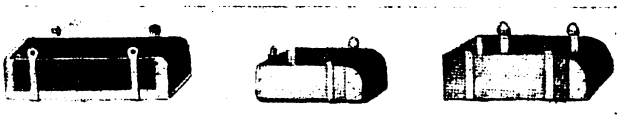


FIG. 32.—FLAT BOTTOM SKIPS.

This type of skip can be obtained from Messrs. John M. Henderson & Co., of Aberdeen, and they are available in sizes varying from 4 feet by 4 feet by 12 inches deep, with an average capacity of 12 cubic feet to 7 feet by 6 feet by 1 foot 10 inches deep, with an average capacity of 65 cubic feet.

The types supplied by this firm are illustrated in fig. 32, and it will be seen that the larger types are suspended at four points, while the smaller size has three eyelets only. They are made with body of hardwood reinforced with steel bands or entirely of steel, the latter being either a bent steel plate stiffened with bars or built up with plates, angles, and flats riveted together. Special chain slings for use with these skips can be obtained in various lengths and sizes.

Radial Loader.—In dealing with methods for conveying soil that has been excavated by hand mention should be made of the "K" type Jeffrey loader, the agents for which in this country are Messrs. Hugh Wood & Co., Ltd., of Fenchurch Street, London. These machines are very useful for handling any loose soil for the purpose of raising same from the bottom of the excavation to the original surface level, and for lifting the surplus soil into the wagons or trucks for removal. It will be appreciated that loading by hand-labour into a large motor-lorry, for example, will be both tedious and costly, as the lift is too great to allow a satisfactory output per man and some mechanical means of raising the soil is absolutely necessary to obtain speed and economy. This type of loader is illustrated in figs. 33 and 34, and some of the claims of the makers can be given in conjunction with the particulars of operating methods. The machine consists of 14 inches by 10 inches in malleable iron buckets attached to two strands of chain for conveying the soil, these being supported by an adjustable inclined arm or boom, which is in turn supported from the main

* I. Introduction, Steam Shovels, Jan. 13; II. Steam Shovels (*cont.*), Trench Diggers, Jan. 20; III. Grab Buckets, Scrapers, Jan. 27; IV. Drag-line Excavators, Feb. 3.

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FIG. 33.—JEFFREY RADIAL LOADER, "K" TYPE.

body of the equipment. This body is supported on three wheels, each 36 inches in diameter, one of which is arranged as the steering wheel and the other two constitute the drive wheels. These drive wheels are connected by a differential drive which enables the loader to turn on either wheel as a pivot, and they are also arranged to carry the bulk of the load, thus giving ample tractive effort. The machine is driven by an electric motor or a petrol engine, and all machinery parts are fully enclosed and protected from dust, with the necessary access door in the enclosure. Two speeds are provided—viz., 60 feet per minute and 4 feet per minute, the former being used when moving the machine between two working points, and the latter when actually engaged in elevating material from a pile of a loose nature. One distinct feature of this elevator is its ability to advance into the material for several feet when the latter is piled up, and thus it becomes a self-loader which can be operated by one man. The capacity is 1 cubic yard per minute when the working conditions are good, and the makers claim that the cost of handling soil by this method may be as low as a penny per cubic yard, while the cost under the most unsatisfactory conditions should not exceed sixpence per cubic yard. The maintenance cost is low, as the machine is especially built for hard work, and the makers state that very few spare-part orders are received from those customers who use this type of equipment. It is also claimed that it will turn short corners, and can be propelled in any direction as readily as a wheelbarrow, and all the controlling levers are in sight, very accessible, and easily moved. It will handle sand, gravel, crushed stone, coal, coke, or any similar material, and the swiveling chute delivers this on any side of the machine, while a long flexible spout enables the operator to distribute same evenly into a wagon or truck. A large dribble chute catches any material which is spilt and returns it to the foot of the elevator. It is stated that one of these machines have been supplied to the Hornsey Town Council, and it is able to load a 7-ton wagon in seven minutes.

Messrs. Millar's Timber and Trading Co., of Pinners Hall, London, supply the Haiss wagon-loader, which is a labour-saving device for handling loose materials. It is a self-propelled petrol-driven machine, fitted with a bucket elevator, at the lower end of which is a patent feeding propeller attachment to trim the material into the path of the buckets. It is claimed that the value of this feature is enormously increased by the slow-speed reverse travelling motion of the entire loader, which automatically clears a path for itself through the pile. It is also claimed that one man can operate this machine and load 5 cubic yards into a truck in five minutes.

These mechanical loaders have much to recommend them when compared with the old-fashioned method of loading trucks by ordinary hand labour, and the saving in cost to the contractor will very quickly enable him to regain the initial capital outlay involved.

Paving-breakers.—The breaking-up and removal of old concrete floors and pavings and the tearing-out of old foundations cannot be classified as ordinary excavation work, but at the same time it will come under the heading of "excavation," and the contractor will frequently be called upon to break up existing concrete before he can proceed with the ordinary digging in some circumstances, and a few notes on this work should prove useful. The general practice in the past has been to cut up old paving and similar materials with hand-labour operating steel wedges and sledge hammers, but this is tedious and costly compared with mechanical means. Special paving-breakers can now be obtained from the Ingersoll-Rand Co., of Queen Victoria Street, London, and this firm claim that, as an example of economy, one case on record shows a cost saving of about 67 per cent. and a time saving of about 75 per cent. when using their machines as compared with hand methods. Two types of paving-breakers are supplied, known as "B.C. 25" and "C.C. 25" respectively, and they are both operated by compressed air, the former type being recommended for air pressures of 80 lb. or higher, and the latter for air pressures under 80 lb.

The B.C. 25 type weighs 58 lb., and has an overall length of 24 inches, while the C.C. 25 has a weight of 68 lb. and an overall length of 25 inches. It is claimed that these breakers will stand the most severe usage, as they are all-steel machines, principally drop forgings, and all parts subject to wear or strain are given special toughening treatment and are ground accurately to size. They have drop-forged T-handles sandblasted to ensure good grip, and in the handle is incorporated a simple trigger throttle valve. The steel cutters or wedges are attached to forged-steel holders in a manner which allows the operator to lift the cutter with the drill, and this saves time in operation. The cutters are of two types, one having a chisel edge for cutting asphalt and similar material, and the other an ordinary good point for breaking or spalling concrete, loosening paving stones, and breaking up compact ground. In operating these breakers a portable compressor, either petrol or electrically driven, is used, and this will operate two breakers continuously if required. The chisel cutter is first used if asphalt has to be taken up, this being employed to cut through the material along the edges of the area to be broken up, and definitely "marking" the line. When the marking is complete the chisel is driven through the asphalt at several



FIG. 34.—JEFFREY RADIAL LOADER, "K" TYPE.

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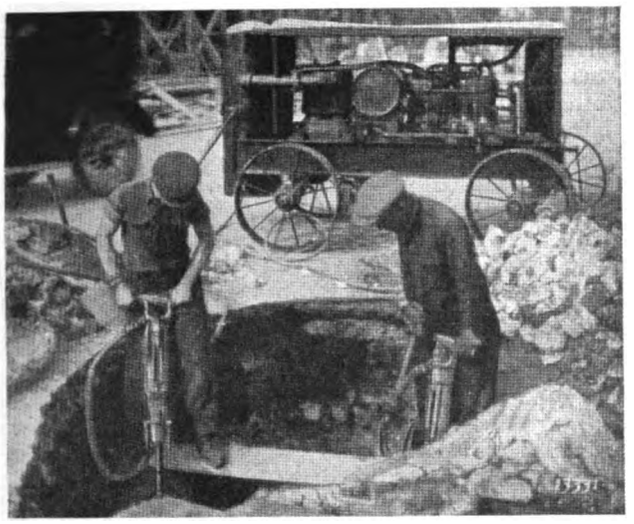


FIG. 35.—PAVING BREAKERS DESTROYING CONCRETE AND MASONRY.

points near the end or corner of the part to be cut up in such manner as to break a piece away from the main body, and only a few seconds are required for each cut. A new line further back is then taken, and successive pieces are cut up until the asphalt is all removed. The gang consists of three men (one compressor man and two breaker operators), and the compressor man acts as a relief to the breaker operators from time to time, and at other times removes the material as it is spalled off. In making up the concrete the pointed cutter is used, and this is driven into the material to spall off convenient-size pieces in a similar manner to that employed with steel wedges and hammers, but the process is very much simplified and expedited. The use of these paving-breakers for the removal of concrete and masonry is illustrated in fig. 35, where the portable compressor can also be seen. One large American company that uses four complete outfits of this kind states that each outfit pays for itself every month, and they substantiate their statement by the following comparison:—

A very good gang of eight men using hand methods will cut up about 80 ft. run of asphalt and concrete 18 to 24 in. wide in an eight-hour day, the total thickness of the two materials being 9 to 12 in. This means 10 ft. run per man per day, or 50 cents. per foot run at a wage of 5 dollars per day. With machine methods, three men with a compressor and two "C.C.-25" breakers will cut an average of 300 lineal feet per day. This costs about 16 cents per foot run, when wages, operating cost, interest, and depreciation are all taken into consideration. The saving in cost is therefore about 66 per cent., and the work is done in about one-quarter of the time. These figures are put forward as actual figures, and not merely estimates. The makers state that these paving breakers are being used in London and other large cities, and each one is capable of breaking up an average of 245 square yards of concrete 9 in. thick per day.

(To be continued.)

The Faculty of Surveyors of Scotland has issued the following general intimation to quantity surveyors: "According to the terms of the Charter of Incorporation of the Faculty, Persons who, prior to 2nd February, 1913, had served as Apprentices or Assistants to Quantity Surveyors, or who at that time had entered upon a period of service either as Apprentices or Assistants, are entitled, without complying with the requirements regarding the Preliminary Examination and Apprenticeship under Indenture, to qualify for admission as Fellows of the Faculty by passing the Professional Examinations. Persons desirous of taking advantage of this provision are reminded that they must present themselves for examination before 1st January, 1923. Ex-Service candidates may be granted an extension of this period on application. Examination Diets will be held in April, 1922." Particulars may be obtained from Mr. D. E. Wallace, C.A., Secretary, 59 George Street, Edinburgh.

Correspondence.

Sir C. Ruthen's Address.

To the Editor of THE ARCHITECT.

SIR,—Nothing could have been more completely satisfactory at this juncture than your reproduction, verbatim, of Sir Charles Ruthen's now notorious speech, and in reading it over, after the first heat has subsided, I am inclined to think that Sir Charles has been rather severely punished.

No one will attempt to defend the infamous action of a traitor either to his profession or to his country, and his advocacy of the Government housing scheme can only be excused on the plea that his (foster) baby has been slaughtered. But, after all, this was only a small part of his speech, which chiefly was aimed at a desire to raise the social status of the rank and file of architects, and in this he was absolutely justified. It is impossible to conceive why an architect is not in a better social position in any district than, say, a solicitor. But he is not! His work requires more care, more study, and more learning than is required by any solicitor, while the lasting effects of his work in the city or the country should alone render the man who follows the profession a leader in every social circle, and I am sure that any attempt to raise the status of architecture should be welcomed. It is, however, a question of opinion whether or not anything in the nature of self-advertisement in such a case would be effective. Personally I should think otherwise.

There is, too, another view that could be taken of the action. Whether Sir Charles is a great architect or a successful politician, he is just as great an architect or otherwise to-day as he was a month ago; and any action tending to hound him out of professional societies will act as a deterrent to any scheme of professional unification. And to anyone who admired the beautiful sketches of Italy illustrated in THE ARCHITECT awhile ago, there will be sincere regret at the unfortunate episode.—Yours, &c.,

W. HOFFMAN WOOD.

Queen Square House, Leeds, February 8, 1922.

[Sir Charles Ruthen's papers were illustrated by photographs, which, however excellent, are not necessarily any evidence of his skill as an architect.—ED.]

Housing Wrangle.

To the Editor of THE ARCHITECT.

SIR,—Your correspondent, Mr. A. C. Huffell, is rather unfortunate in his analogy—the comparison of architects in relation to housing and doctors in relation to influenza. Architects made with regard to housing a bid to control the same with the Ministry of Health, particularly so as regards fees; but I am unaware that doctors have made any such arrangement with the Ministry of Health either to prevent the scourge of influenza or cure its victims. There is no obligation on the part of any citizen to be treated, or to treat himself with a view to preventing, or curing himself of influenza or passing it on to others. However, he must have a roof over his head of some sort, and architects have claimed the right to provide him with this. Again, it is not fair to the medical profession to lay such a charge at their door. Some sixty years ago about one-seventh of the poverty of this country was the direct result of typhus fever; to-day it is practically non-existent, and the reason is not far to seek.

The architectural profession have almost to an individual raised no objection to the whittling down of the conditions of housing, nor did they effectually protest against the increased cost or "duds" being entrusted with the work, though housing was largely under their control.—Yours, etc.,

"INDEPENDENCE."

The "Architect" Fifty Years Ago.

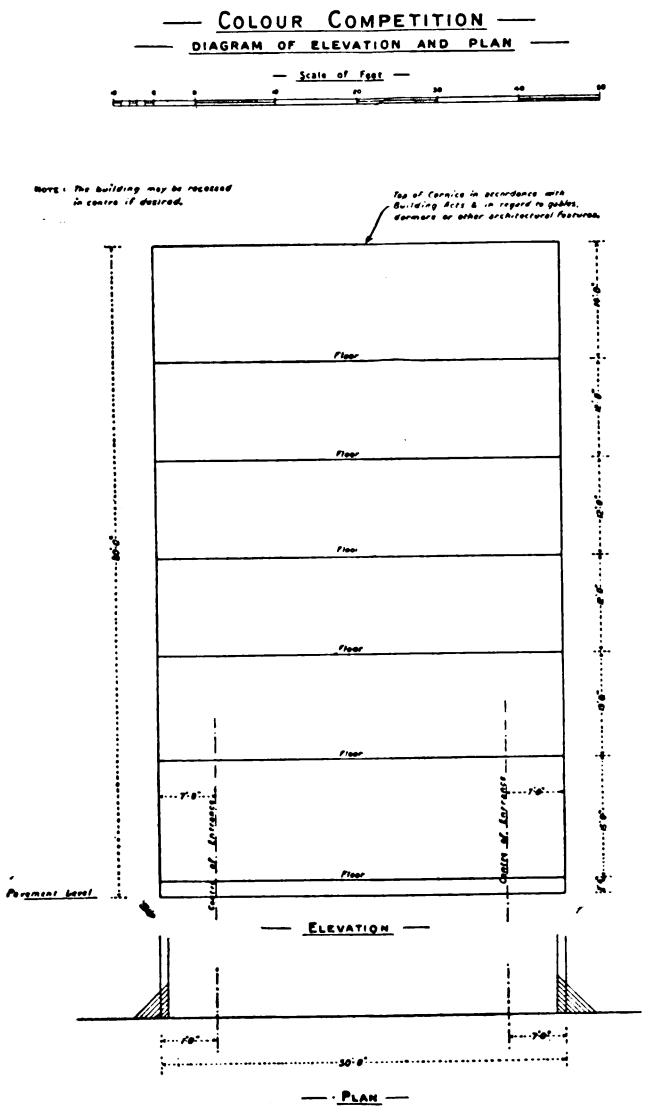
FEBRUARY 17, 1872.

THE LONDON SCHOOL BOARD.

The following architects have been invited to send in designs for an elementary school to be erected in Johnson Street, Stepney, to accommodate 1,000 children, viz:—Messrs. T. Roger Smith, E. Barry, Hy. Saxon Snell, A. & C. Harston, Jarvis & Son, and A. Newman. The building is to be designed upon the principle of Class Division, sometimes called the Prussian System.

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R.I.B.A. Colour Competition.



A sum of £200 has been placed in the hands of the President of the Royal Institute of British Architects by an anonymous donor for the purpose of instituting a competition for a *business building*, facing on an ordinary London street, in which "colour" (of a permanent nature) would be the dominant feature.

The competition will be open to all members of the profession, but it is earnestly hoped there will be a strong response by students of the Architectural Schools in London and elsewhere.

A diagram, drawn to scale, will be issued, showing the floor lines and the centre lines of the principal doorway. These must be adhered to by competitors.

It is suggested that pronounced architectural features should be confined to the entrances and the topmost storey.

Competitors have a free hand as regards style and colour treatment. The ground floor might be a bank or insurance office, the remaining floors might be flats or offices. Three premiums (£100, £50, and £20) will be awarded to the best colour designs, irrespective of architectural excellence. A fourth premium of £30 will be awarded to the best architectural design. *Colour must be suggested by the use of permanent material only.* Designs in oil paint, fresco, scrafito, and so on, will not be admissible.

It is suggested that competitors should aim at a broad treatment in masses rather than in disjointed detail, and should bear in mind that what might be admirable and appropriate in designing a wall-hanging could easily become vulgar and offensive when applied to a building.

With regard to the material competitors may suggest in their designs, it may be of service to them to know that a scheme for facing concrete blocks with various materials, such as marble, terra cotta, mosaic, or copper plates, has been devised and successfully produced. It has been found that the cost of facing a building with either of these materials would be at least 25 per cent. cheaper than an ordinary stone facing. Competitors, however, are not invited to submit estimates.

The terra cotta facing can be made in any colour, and not highly glazed. It is possible to obtain this material with a gloss like that of old Wedgwood or similar ware. The maximum size (at present attained) is 21 inches by 15 inches, in columns up to 24 inches diameter. It should be borne in mind that there might be slight irregularities on the face and variety in the tone of colour. This would give a play of light which some designers may think desirable.

Of course marble facing can be of much larger dimensions. Competitors must suggest only such marbles as are known to withstand the deleterious effects of the London atmosphere. Samples of these marbles and a piece of old Wedgwood as a sample of glazing on terra cotta can be seen at the R.I.B.A.

Stone or granite may be used at the discretion of the competitor.

Designs must be prepared as actual working drawings, but shadows may be cast where they would actually occur. As the assessors are practical architects and painters and not potential clients, there need be (and must be) no picturesque foreground. However, to give scale to the building, one figure of average height will be allowed as being desirable.

Premiated designs to become the property of the donor. The authors may, if they desire, make copies of their own works.

The successful designs will be published.

Drawings:

(1) Elevation to $\frac{1}{8}$-inch scale.

(2) Detail of entrance or portion of top storey to $\frac{1}{2}$-inch scale.

(3) Section to $\frac{1}{8}$-inch scale of front wall, showing the depth of reveals, also the depth of any recessed features.

Premiums: First, £100; second, £50; third, £20; fourth, £30.

Assessors: Sir EDWIN LUTYENS, R.A.; T. E. COLLCUTT, Esq., P.P.R.I.B.A.; Professor GERALD MOIRA; and WILLIAM WALCOT, Esq. Should either of the Assessors be unable to act, the President will nominate one in his place. The designs, by the courtesy of the Royal Institute of British Architects, will be exhibited at 9 Conduit Street, W. 1, after the award has been made.

All questions relating to the conditions must be received by the Secretary, R.I.B.A., not later than February 28, 1922.

Designs must be received by the Secretary, R.I.B.A., 9 Conduit Street, W. 1, not later than May 1, 1922.

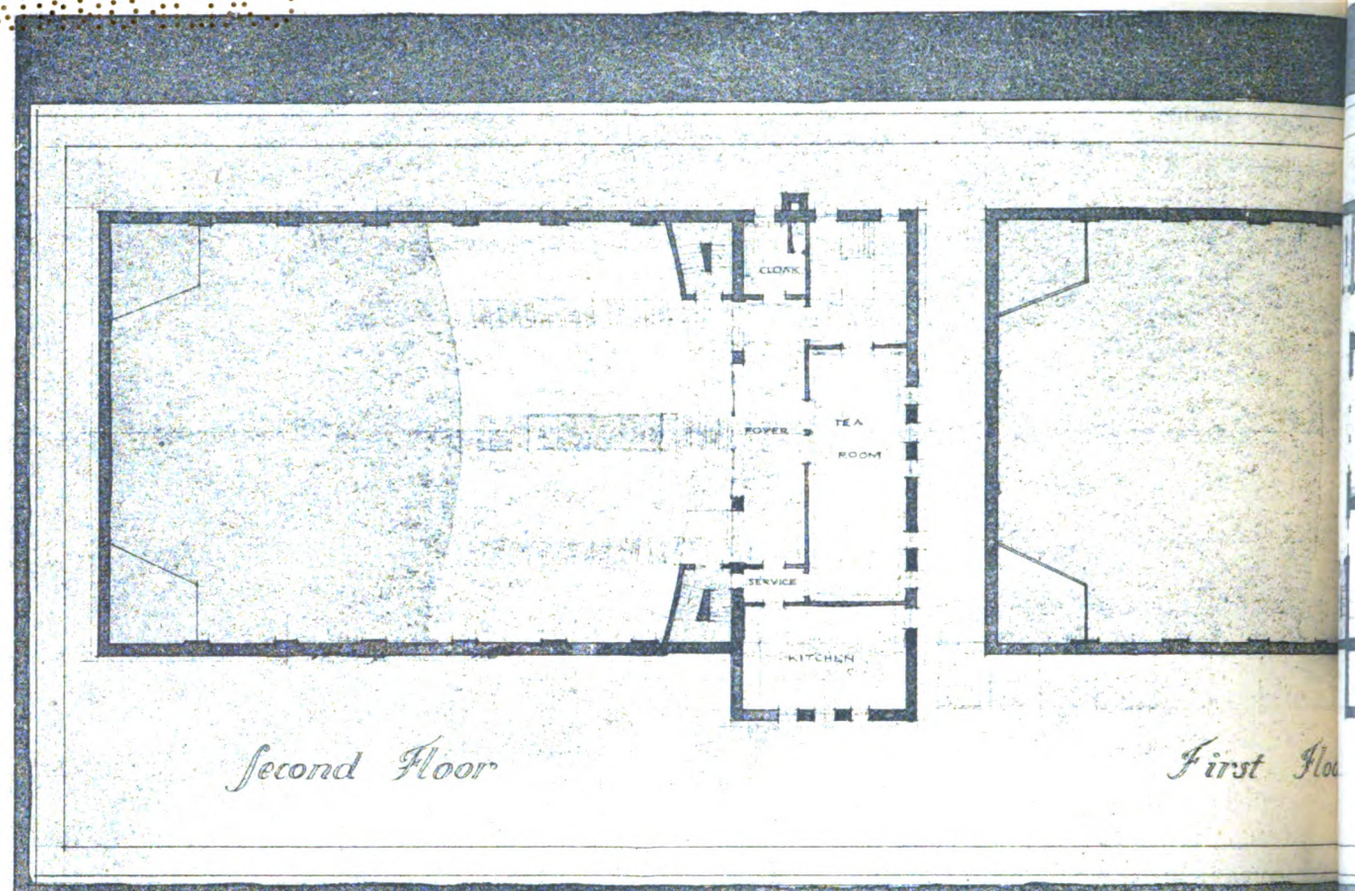
Mr. C. H. Riley, Lic.R.I.B.A., has been appointed county architect for Bucks at a salary of £600 per annum. Mr. Riley has hitherto been acting as education architect to the County Council at the same salary, but inclusive of bonus.

The Liverpool University School of Architecture has secured eight places out of nine in the first stage of the competition for the Rome Scholarship in Architecture, 1922. The competition is held in two stages—a first or preliminary competition, which takes place at the beginning of the year, and a second or final competition some three or four months later. As a result of the first competition nine candidates have been selected by the Rome Faculty of Architecture to proceed to the final test. Eight of these nine candidates are students of the Liverpool University School of Architecture, the ninth competitor being a student of the School of Architecture of the University of Manchester. The subject set was a lakeside restaurant in a public park. All designs are done under conditions that ensure their being the competitors' own work. They are also submitted under pseudonyms. The students of the Liverpool University School who have been successful in the first competition for the scholarship this year are Mr. Eric R. Arthur (N.Z.), Mr. G. Checkley, Mr. W. Dougill, Mr. W. B. Edwards, Mr. E. H. H. Higham, Mr. E. W. Martin, B.Sc., Mr. S. Welsh, and Mr. E. Williams.

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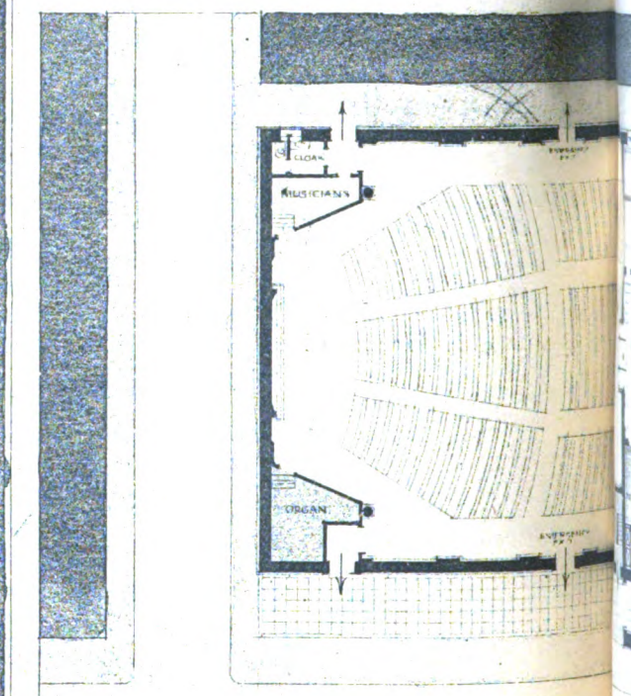
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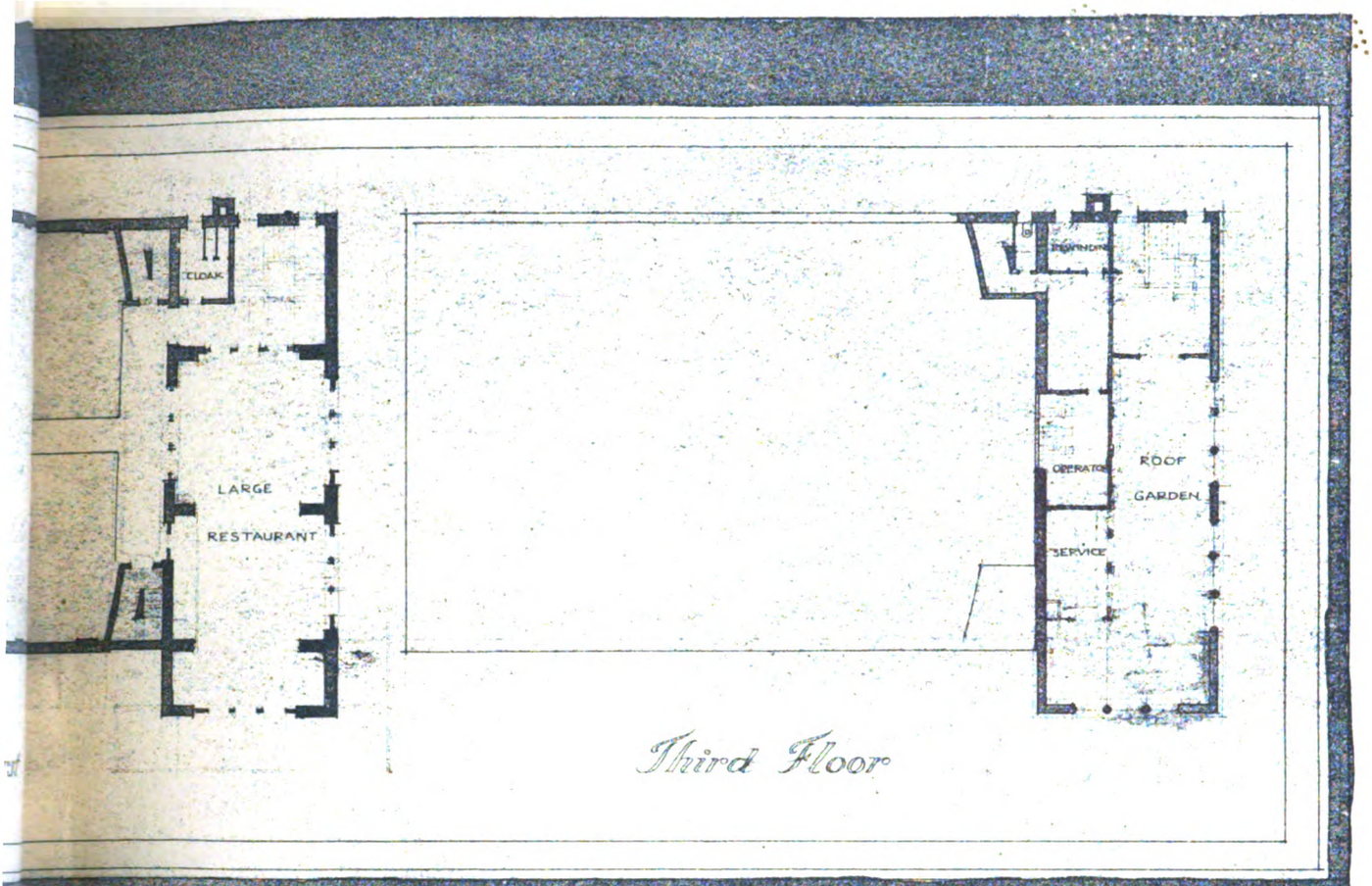
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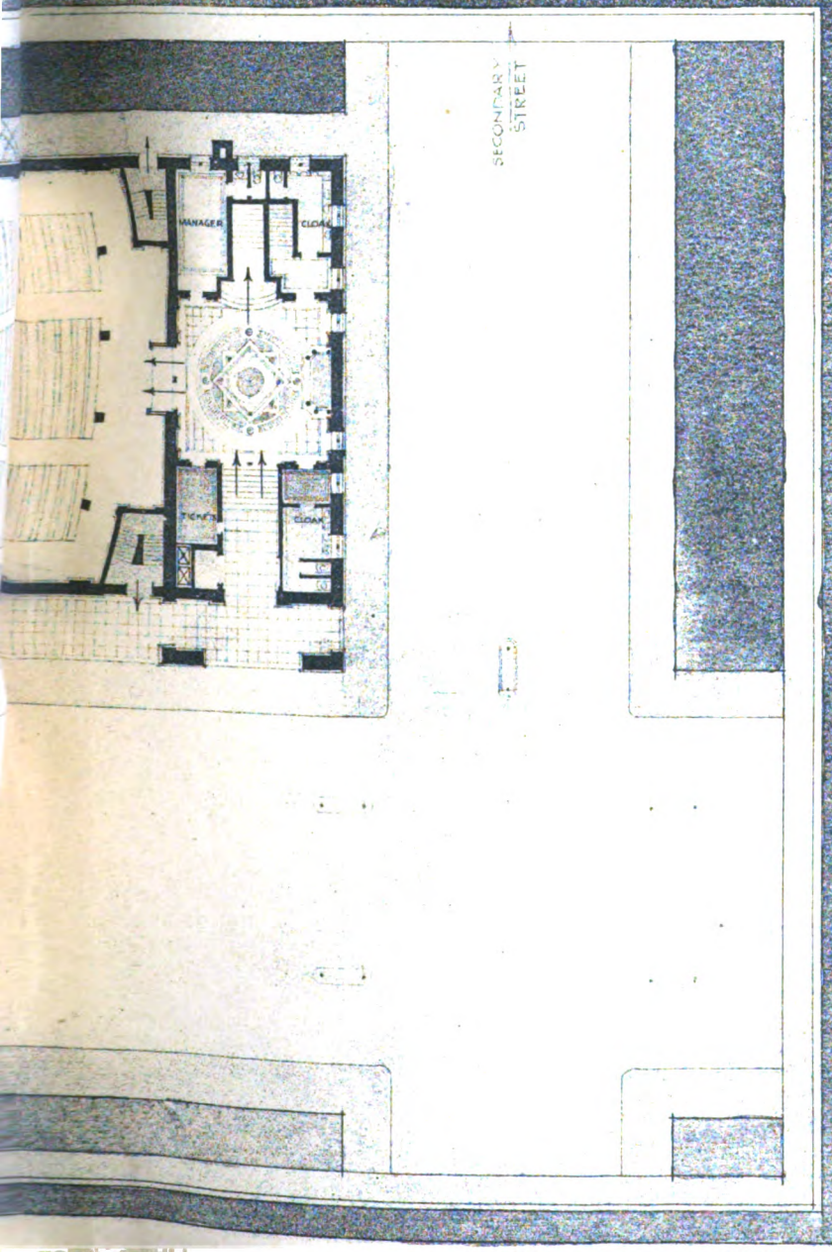
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Third Floor.



FOURTH YEAR STUDENTS' WORK.

BY H. L. CURTIS.

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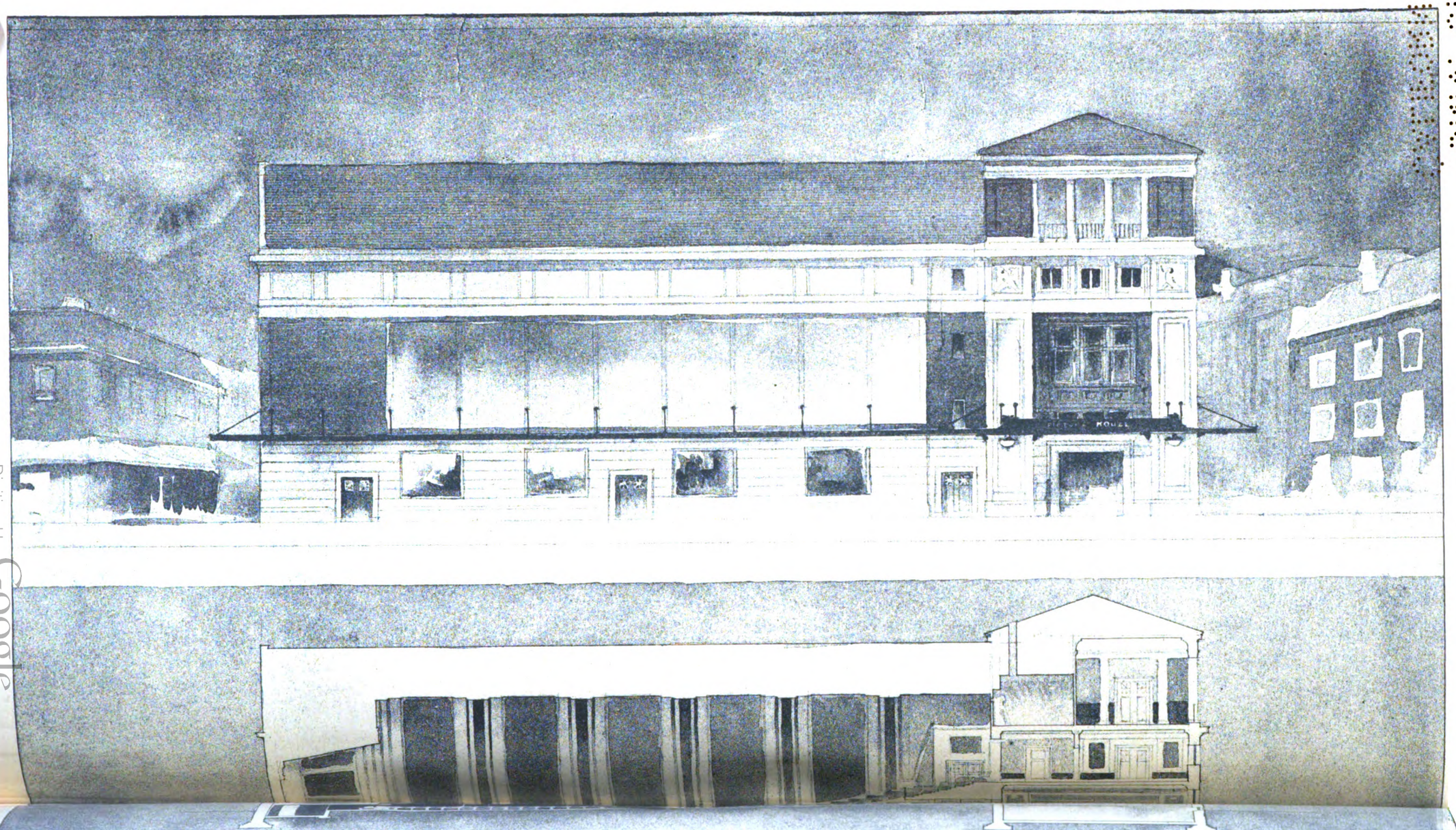
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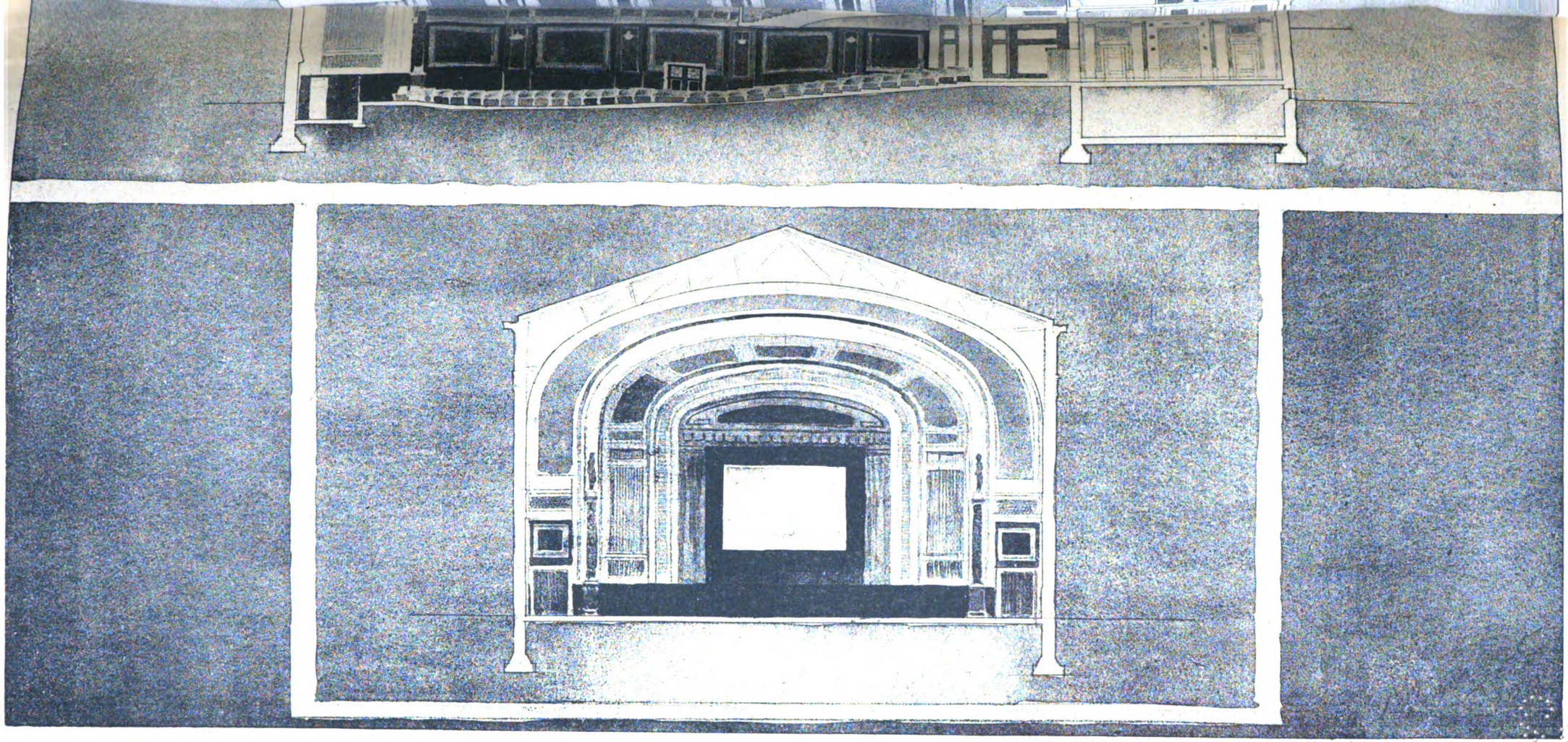
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ARCHITECTURAL ASSOCIATION SCHOOLS: FOURTH YEAR STUDENTS' WORK.

DESIGN FOR A CINEMA. BY H. L. CURTIS.

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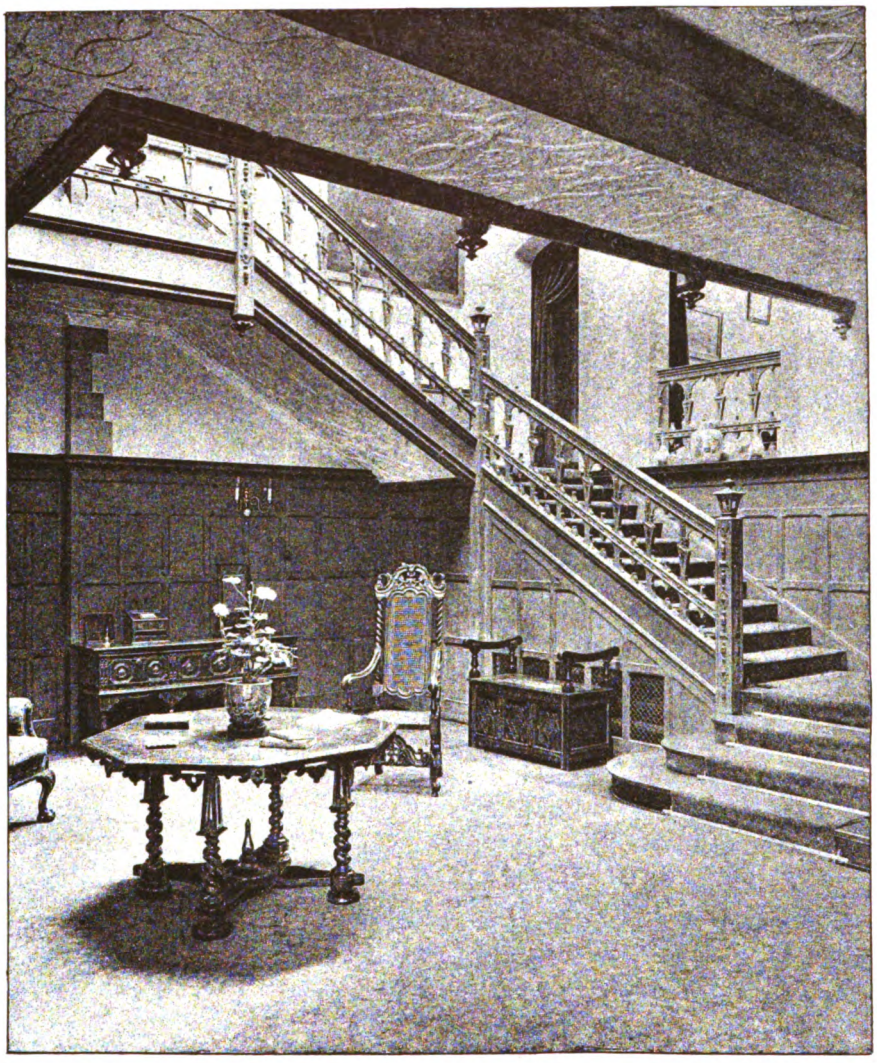
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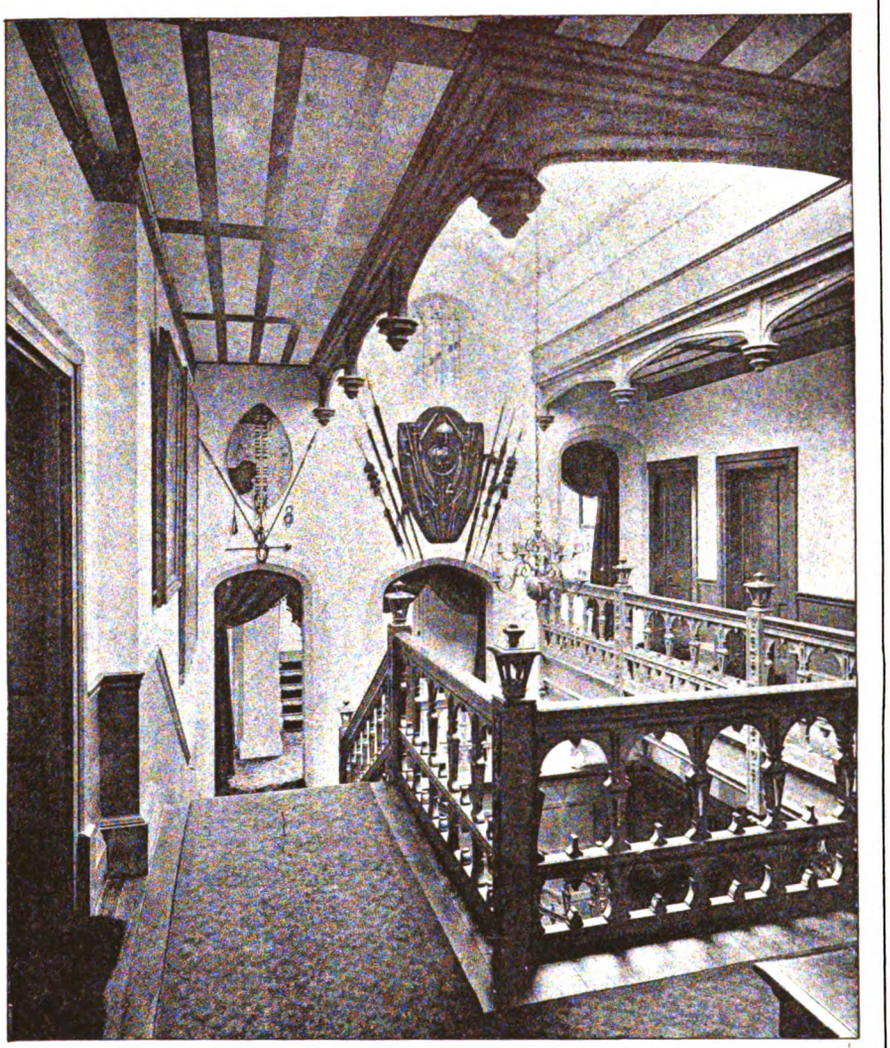


ALTERATIONS TO "UNDERHILL"
ROBERT P. OGLES

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Building Trades Parliament.

The quarterly meeting of the Industrial Council for the Building Industry was held at Montagu House, Whitehall, on Friday, the 10th inst. The agenda was a light one, and the proceedings were over in under three hours. Mr. James Storrs, Chairman, presided.

After the Treasurer's report had been formally adopted there arose a discussion on a report from the Safety and Welfare Committee dealing with "Silicosis amongst Stonemasons" and the desirability of a scheme of compensation to masons being made under the Workmen's Compensation (Silicosis) Act, 1918.

This Act only applies to such industries and processes as may be determined by the Secretary of State, Home Office. Masons employed in dressing stones are exposed to risk by inhaling silica dust generated at their work, and those employed on sandstone (which contains silica in the form of sand or quartz in high proportion), and to a less extent upon granites in Aberdeen (which contain it in lower proportion), are known to experience a high death-rate from phthisis. The Committee reported their conviction, after investigating this subject, "that the exhaustive report issued in 1914 by the Royal Commission on Metalliferous Mines and Quarries contains all the evidence necessary to make the case for the inclusion of stonemasons in the Silicosis Act an unanswerable one. That report, backed up by Professor Collis, who is probably the ablest authority on this subject, shows the heavy toll made on the stonemasons, and also the abnormally high death-rate at the early age of between twenty-five and thirty-five. In view of these facts we therefore recommend that the Secretary of State be asked to consider the application of a scheme of compensation to that class of work."

Mr. J. E. Drower (representing the Surveyors' Institution) thought the report did not give a very strong case for presentation to the Home Secretary. His own belief was that the only method of dealing with such a problem was by national life insurance, though he admitted the tremendous difficulties in the way of such a thing.

Mr. S. Stranks (Operatives) said as a young man he migrated from the county of Lancashire because of the ravages of this disease, and that the generation which then worked with him had become practically wiped out, many of them at forty years of age. Therefore he asked the Council to support the report. There certainly had been some improvement in the conditions and environment of the worker, thanks to the trade unions; but the problem still remained. The operatives asked the employers to combine with them in tackling this particular problem of the industry with a view not only of removing a painful disease, but also of adding to the efficiency of the operatives engaged.

Mr. Thos. Foster (Employers) stated that in those parts of the country, like Cheshire, Lancashire, and the North, where sandstone is used, the mortality was very serious indeed. He submitted there was a case for discussion with the Home Secretary.

The Silicosis report of the Safety and Welfare Committee was carried.

Mr. S. Smethurst (Employers) gave an account of the activities of the Education Committee and certain amendments which they proposed to introduce into their original scheme.

Mr. Stranks (Operatives) thought some reactionary influence must have been at work against the important provisions in the apprenticeship proposals. From the standpoint of technical education this country was generations behind its keen competitor, Germany. It was quite likely that in areas where there was only a narrow limited outlook both employers and operatives would want to keep the proposals at arm's length. It was all-important the right type of boy should be induced to enter the building trade. Under existing conditions the unskilled labourer could not afford to put his boy to a skilled craft. It had been objected that the proposals might mean an outlay of £13 per boy. Such cost, however, would not really fall on the employer, but on the community. Anyway, was it to be said the industry could not bear such expense? The real obstacle was not expense, but prejudice.

Mr. George Hubbard (Royal Institute of British Architects) said the point had been raised as to how architects viewed this question of wages. The report suggested a standard rate of wages for apprentices. Speaking from an architect's point of view, he would be opposed to any standard, local or general. It seemed to him the good man ought to receive more than the indifferent man, the good apprentice more than the indifferent apprentice.

Mr. J. A. Wilson (Operatives) admitted the report was a compromise, and an attempt to reconcile the various interests. The alternative was to continue in the present position with half-trained lads, incapable and inefficient, a drag on the labour market and a menace to the country. Their ideal was for every workman to be not merely a machine, but a craftsman taking an intelligent interest in the industry. It might take generations to attain, but the present scheme led towards the first step.

Mr. J. A. Gibson (Operatives) thought the slow progress made in this matter of apprenticeship reflected anything but credit on the Building Trades Parliament. As far back as August 1920 a decision was arrived at to put a scheme into operation. In 1921 they were calmly told the scheme had not been ratified by the Builders' Federation. He contended the Operatives possessed as much right to control entry into their craft as any of the professional bodies. Such a scheme was in the interest of employers, who would recoup themselves twice and thrice over if the boys were turned out efficient and able to work without supervision. If decent wages were not forthcoming the right boy would not be attracted, and the poor working man could not afford to apprentice his sons.

The Council ultimately agreed that the proposed amendments should be sent out to the constituent bodies with a strong recommendation for adoption, and a request that replies should be sent in to the Education Committee by April 1.

The Safety and Welfare Committee had prepared a report on the proposed "Regulations for the Use of Woodworking Machinery." Since it was issued the Home Secretary wrote to suggest the advisability of arranging a conference at the Home Office with representatives of the chief associations which have objected to the revised Regulations. On the motion of Mr. J. P. Cox, Chairman of the Committee, it was agreed to accept the suggestion and to appoint representatives to attend any conference which might be called.

At the end of the meeting some remarks were made as to a revision of the constitution of the Industrial Council for the Building Industry. This matter is at present in its initial stage, and the National Federation of Building Trades Employers, who initiated the idea, have not yet submitted their suggestions.

The concluding business was to fix that the next meeting of the Building Trades Parliament will be on May 18 and 19, in London.

Sir A. Mond (Minister of Health) stated in the House of Commons, on the 9th inst., that the total number of houses completed by local authorities and private builders under schemes of financial assistance up to January 1 was 102,480. In addition, 3,150 other dwellings had been provided by the conversion of houses into flats or by the conversion of huts and hostels. The number of houses in course of erection was 85,892, and the number not yet started 29,778. The lowest prices approved for houses recently had been £433 for a non-parlour house with two bedrooms, £450 for a non-parlour house with three bedrooms, and £500 for a parlour house. In present circumstances the Government could not undertake to extend financial assistance to housing schemes beyond the limits announced last Session. Where work had been undertaken by local authorities with the approval of the Ministry and for reasons outside the control of the authorities could not be completed by July next, the time for completion would be extended by the Ministry as might be necessary.

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Possibilities of Brickwork.

At a recent meeting of the Clayworkers' Institute, held at Essex Hall, Essex Street, Strand, W.C., a lecture was delivered by Mr. Nathaniel Lloyd, O.B.E., entitled "Brickwork: Its Possibilities in Manufacture and in Building." Mr. Lloyd is probably well known to many of our readers, for he is a frequent lecturer before provincial architectural societies in connection with dissemination of knowledge of those things which make for "right building." The method he employed was to illustrate many fine achievements in brickwork in the past, and to plead for a return to such things as were found to be good.

The expression "bricks and mortar" is commonly used to-day in a derogatory sense to describe cheap and inferior building. Unfortunately, there does exist a large number of brick structures which are distinctly bad from an architectural aspect. This, said Mr. Lloyd, was especially regrettable, because the right kind of brick, rightly used, is by far the most durable, the most economical, and the most beautiful of all building materials. The wrong kind of brick is often expensive, is not always durable, and is invariably unpleasing, if not actually vulgar. The wrong kinds are presumably produced because they are wanted. Brick manufacturers, being in business to sell what they produce, naturally produce the class of goods for which there is a demand. For many years past the bulk of the demand has been for a regular, smooth brick, of bright and even colouring, and having sharp arrises. That is what many architects and builders have called for, and, as might be expected, brickmakers have supplied it. The framer of specifications wants such brick blocks which, when pointed with very white or very dark cement, produce a "neat" job. Now, such a brick is not essential to durability, and the result aimed at is a bad result, unpleasing to the eye, and comparing unfavourably with the appearance presented by other and more artistic materials. It compared most unfavourably with brickwork of the fifteenth, sixteenth, seventeenth, and eighteenth centuries, which has stood the test of time and furnishes us with a great variety of models of what brick building may be. If one carefully examines these old buildings one can only conclude that the standards which produced them were right, and that this modern standard of brick and brickwork is quite wrong.

The old brickwork was characterised by the quality of variety—variety of form, variety of texture, variety of colour. On the other hand, the characteristic of the average modern brick is uniformity—uniformity of outline, uniformity of surface, uniformity of colour—deadly, deadly uniformity. This is what is demanded in specifications, laboriously produced by the manufacturer and vigilantly insisted upon by the clerk of works. All struggling to secure the wrong thing!

While admitting it was the province of architects to select and combine bricks, Mr. Lloyd went on to suggest it was within the province of the manufacturer to assist the architect, and that doing this must result to the advantage of the individual manufacturer, and also to the reputation of the material and of the trade as a whole. In these days of severe competition by new materials every "right" bit of brickwork does its part to raise the standard of "bricks and mortar," every vulgar production lowers that standard. Most persons who select bricks are acquainted with a limited number of varieties, and with a still smaller number of combinations. Manufacturers can do much by producing greater variety of texture and colour, and also by suggesting combinations of facing bricks and for dressings. The infinite variety used in old buildings in different parts of the country demonstrate the potentialities at the disposal of the manufacturer. Every practical maker knows what varieties of texture and colour can be produced (often at no increased cost) by varying the composition of materials, by regulating temperatures, and by the admission of more or less air into a kiln. The purchaser seldom knows such things. Therefore he must rely upon the manufacturer's interest and assistance if the best results are to be obtained.

Unfortunately a taste can be cultivated for what the unprejudiced as well as the well-informed join in recognising as hard, bare, mechanical, and unpleasing. Anything possible to improve the appearance of common bricks should be studied. They will always be used for many works where facing bricks cannot be afforded. Stocks may be picked. Wire cuts might be sand-faced by laying on sand—a coarse sand producing a better texture.

All good examples of brickwork have one thing in common, and that is they are well designed. Bad material and bad workmanship will mar a good design, and equally the best material and the best workmanship are wasted if the design is bad. In architecture good proportions are essential, yet a cursory examination of many buildings shows that proportion has not been studied—often it appears to have been ignored. The worst of all building design is that where stock units or stock ornamental details have been "worked in."

Mouldings and ornament have almost become discredited terms when applied to brickwork. Some years ago, explained Mr. Lloyd, large varieties of moulded bricks and ornamental terra-cotta were produced by manufacturers for incorporation by architects and builders as strings, copings, cornices, finials, and panels. The free use of this had the effect of prejudicing the use of the right kind of brickwork, and did infinite harm to the brickmaking industry. There are certain mouldings which are suitable for stocking as units, but the designing and application of these must be done by competent persons. Perhaps the commonest fault found in these stock mouldings is the coarseness of fillets and excessive fulness of the curves. Designers so often forget or have failed to notice that the old builders did not complete their curves. Another fault is the mechanical nature of the ornament. Not only was it necessary that ornament should be correctly and well designed, but it was essential that repetition of a unit should not be monotonous. An examination of old work shows that where a length of such material as egg-and-tongue moulding was required, say for plasterwork, perhaps three separate matrices of the pattern would be taken from which to mould (each consisting of several repetitions of the egg-and-tongue)—and these three would form a section from which the actual casts were made. Thus, by taking advantage of the inequality of shrinkage of the moulds sufficient variety was secured to avoid repetition becoming mechanical. Manufacturers who propose to produce ornamental patterns on brick by means of rolls fixed to mouthpieces of machines would do well first to consider such methods.

Speaking of more particular instances, face brickwork from the fourteenth to the nineteenth century was roughly divided by Mr. Lloyd into two classes. The earlier consisted of rough-surfaced, irregular bricks varying in thickness from $1\frac{3}{4}$ inches to $2\frac{1}{4}$ inches, and built with thick mortar joints. The mouldings being first Gothic and afterwards classic. The later brickwork was made up of bricks of from $2\frac{1}{8}$ inches and upwards in thickness, and built with thin joints; the bricks being rectangular and even in form and the mouldings classic.

Bricks were freely imported into England from the Low Countries (the home of modern brickwork) during the sixteenth and seventeenth centuries. Mr. Lloyd said he had found Dutch bricks in the eastern and southern counties and so far west as Topsham, near Exeter. Their colour is usually pale pink, though some are saffron colour. They measure 7 inches by $3\frac{1}{4}$ inches by $1\frac{5}{8}$ inches. They are hard but very light. Their modern successors—the Dutch Klompje brick—is $\frac{1}{8}$ inch thicker and strong pink in colour, with patches of greyish tint on surface. These bricks are imported for special work, and there is usually a stock held in London. They are esteemed on account of their irregularity of surface, form, and colour. The lecturer could not understand why many should not be produced in this country. Not only have whole houses been faced with them, but they

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Hotel Traymore, Atlantic City, New Jersey.
Concrete Engineers: The Trussed Concrete Steel Co. Ltd.

A CASE OF URGENCY.

An Architect who employs a firm of reinforced concrete specialists rightly expects that the detail drawings shall be prepared as rapidly as possible.

In emergency cases, he demands a service that will meet the urgency of his needs in order that the construction may be unhindered and all delays avoided.

Recently in work that was urgently required it was possible to complete the detail drawings in record time by allocating thirteen engineers for their preparation. This service permitted a remarkably expeditious construction.

Firms which have been responsible for the erection of thousands of reinforced concrete constructions can be of the utmost assistance to Architects, and can effect the greatest reductions in building costs.

The Trussed Concrete Steel Co. Ltd.

125 Truscon House, Cranley Gardens, S.W. 7.

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were extremely useful for details, such as chimneypieces, as they cut well.

Mr. Lloyd said he sometimes wondered whether there was any structure which could not be built up of bricks as well or even better than with other materials. He really believed it excelled stone, and though steel and concrete had their uses they could not be compared with brick. Upwards of sixty slides were then thrown on the screen to illustrate the infinite varieties of uses to which the material has been put. In speaking of brick chimneys, he pointed out that some were elaborately moulded, others were quite simple, depending upon proportion and upon the projections of the oversailing courses being right. One thing old chimneys had in common—thin bricks have been used, some 2 inches, some 2¼ inches, but none thicker. If thick bricks are used the projections must be decreased or the cap will be top-heavy. For his own reputation every brick maker should turn out 2¼-inch bricks and sell these as chimney-bricks at the same price as thick bricks of the same kind. He should do more than this; he should impress upon his customers the necessity for using them. If not well-designed and in good proportion the effect produced by elaborate chimneys is disastrous. Mistakes silhouetted against the sky cannot escape condemnation. Modern reproductions of Tudor chimneys are often exceedingly bad. A quite simple chimney was infinitely better.

Mr. Lloyd devoted the last section of his address to an account of the history of terra cotta in England. The four most important examples of old work were East Barsham Manor House and Great Snoring Rectory in Norfolk, Layer Marney Towers in Essex, and Sutton Place in Surrey. Mr. Lloyd expressed the opinion that the material is seen at its best when used as stone would be used, and also that stone colourings are most satisfactory, particularly when terra-cotta is used with brick as for dressings. Also that it is seen at its worst when smoothest, when pinkest and when it is tortured into those shapes which pass as being original.

In conclusion Mr. Lloyd thus enthusiastically summed up the virtues of brick as a material: "Its components are obtainable everywhere. It is warm, it is light, it has good texture. It has greater variety of colour than any other building material. It weathers for centuries, improving meantime. It is truly fire-resisting, for it springs from fire. It can be moulded, rubbed, cut, and carved. Not only is there no building material that can compete with brick; there is none that can even approach it."

A discussion followed the lecture, in which Mr. Guy Dawber, F.R.I.B.A., and Mr. Martin A. Buckmaster, A.R.C.A., took part.

The Lincoln City War Memorial have accepted the following contracts for the erection of the proposed memorial: For the foundations (Messrs. William Wright & Sons, Ltd., Lincoln), £199 12s.; for hauling stone from the quarries (East Midlands Haulage Co., Ltd., Lincoln), £58 10s.; for the stonework (Messrs. William Wright & Sons, Ltd., working in conjunction with Messrs. M. Tuttell & Son, sculptors, Lincoln), £1,915.

A course of six lectures on "The Principles of Heating and Ventilation" will be delivered by Mr. Arthur H. Barker, B.A., B.Sc., Wh.Sc., on Tuesdays at 5 p.m., beginning February 21, at the Bartlett School of Architecture at University College, Gower Street, W. The subject will be divided in the following manner: Lecture (1) The properties of heat and air: the requirements of the human organism; (2) the essentials of heating and ventilation: quantities of heat and air; (3) the various methods of heating: centralised plants; (4) the various methods of ventilation: natural and artificial; (5) boilers, fans, and other apparatus: boiler-houses, fan-chambers, and flues; (6) cost of installation, cost of upkeep, tests and test conditions. This course is open without fee to day students of the School of Architecture who have paid a composition fee. The fee to others is £1 1s. Application for tickets of admission should be addressed to Mr. Walter W. Seton, M.A., D.Lit., F.S.A., Secretary, University College, London (Gower Street, W.C. 1).

Birmingham Architectural Association.

The eighth general meeting of the Birmingham Architectural Association was held on Friday, February 10, at the School of Art, Margaret Street, Birmingham. Mr. H. T. Buckland, F.R.I.B.A., took the chair, and Mr. H. G. Watkins, F.R.I.B.A., read a paper on War Memorials.

Mr. Watkins stated that a war memorial to be a true memorial must clearly express its purpose. He therefore ruled out all utilitarian structures, and confined himself to those which are unmistakably war memorials, or in other words, monuments which are combinations of architecture and symbolic sculpture. These he dealt with historically up to the beginning of the 19th century, mentioning particularly the Winged Victory of Samothrace, the Arch of Titus, Trajan's Column, and the Gattamelata statue, at Padua.

He then dealt with the later monuments, classifying them nationally in order to show how the character and ideals of the nation are exemplified in its architecture and sculpture.

Italian memorials, as illustrated by that to Garibaldi, are marked by exuberance and freedom from restraint, typical of the race, while the earlier monuments of the Germans were dignified and scholarly until the teachings of Treitsche and Neitzsche began to take effect, when they became coarse and heavy. Of all the nations, perhaps the French show the truest appreciation of the right combination of architecture and sculpture, while English monuments, though dignified and correct, are rather dull and lacking in imagination.

Coming to memorials erected as a result of the Great European War, the first one mentioned was that to Nurse Cavell, which in the speaker's estimation is not a success. The outstanding feature of the great movement to erect war memorials in this country has been the universality of the smaller monuments and the multiplicity of these in our villages, churches, clubs, &c., is very characteristic of the love of home and individualistic spirit of the British people. As an inevitable result of the tendency to erect these smaller monuments, few of the larger and more elaborate types have arisen, and nationally none of the various grandiose suggestions have yet materialised. Instead we have the Cenotaph in Whitehall and the simple slab over the grave of the Unknown Warrior, in Westminster Abbey, both of which have taken such a hold upon the imagination of the people that it is doubtful whether any magnificent national memorial could now be erected which would make the same appeal to the sentiment.

As regards the vexed question of sites for war memorials, the lecturer thought that a large symbolic monument may well be placed in an open square, provided that there is a suitable background, but the smaller monuments are better placed in unobtrusive surroundings.

In conclusion, Mr. Watkins showed a slide of a great arch which it is proposed to erect on the Bar-le-Duc to Verdun Road. The sides of the arch are to have bands of sculpture, illustrating the endless procession of automobiles and French troops, hurrying to defence of Verdun.

At the conclusion of the paper, Mr. W. Haywood, F.R.I.B.A., proposed a vote of thanks to the lecturer, which was seconded by Mr. H. W. Hobbiss, A.R.I.B.A., and carried unanimously.

Notice has been given in the "London Gazette" that a petition of Alexander N. Paterson, President of the Institute of Scottish Architects and others, praying for the grant of a charter of incorporation to a body to be named "The Incorporation of Architects in Scotland," has been presented to His Majesty in Council, and His Majesty, having referred the said petition to a Committee of the Lords of the Council, notice is further given that all petitions for or against such grant should be sent to the Privy Council Office, Whitehall, on or before March 6 next.

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AUSTRALIA HOUSE.
A. Marshall Mackenzie & Son, FF.R.I.B.A.
Architects.

From an original Etching by
Christopher M. Shiner.

REDPATH BROWN & CO. Ltd.

CONSTRUCTIONAL ENGINEERS,

3 LAURENCE POUNTNEY HILL, E.C.4

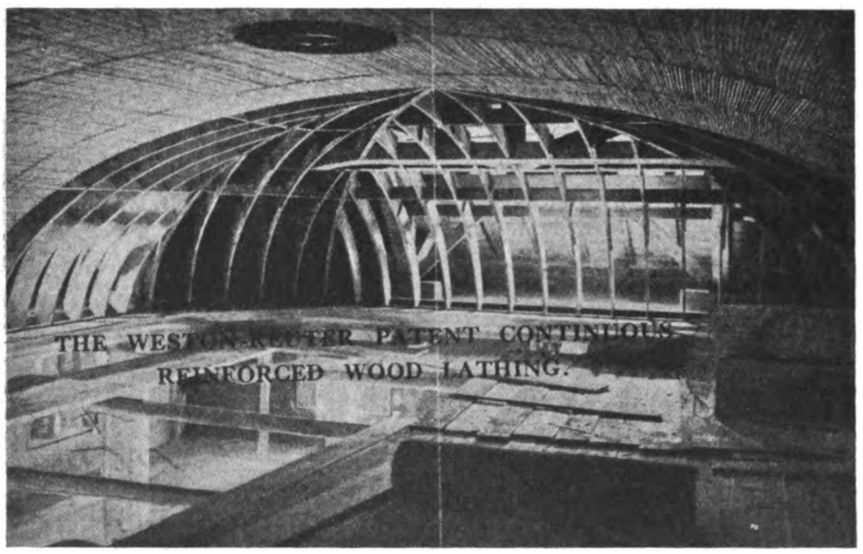
WORKS AND STOCKYARDS

LONDON	MANCHESTER	EDINBURGH	GLASGOW	BIRMINGHAM	NEWCASTLE-ON-TYNE
Riverside Works, East Greenwich, S.E.	Trafford Park.	St. Andrew Steel Works.	Westburn, Newton. Office: 19 Waterloo St	Office: 47 Temple Row.	Office: Milburn House.

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Continuous Reinforced Wood Lathing.

We here illustrate the Weston-Reuter system of reinforced lathing, which will, without doubt, greatly interest our readers. This material consists of wooden laths (each ½ inch by ¼ inch section-bare) tied by galvanised iron wire fixed at right angles to their length at intervals of approximately 9 inches. It is delivered on site in rolls 33 feet long and in specified widths varying from 1 foot 8 inches to 7 feet 5 inches. The lathing is cut as required and then secured to the woodwork by means of small galvanised staples. The increase of speed when compared with the laborious nailing of each lath will be at once obvious. In the section illustrated the lathing is shown fixed at A to the underside of rafters, at B to collars, at C to underside of floor joists, at D to underside of eaves, and at E to vertical studding. These are all straightforward situations and do not demonstrate the remarkable adaptability which is exemplified in the photograph of its application to a difficult curved ceiling.



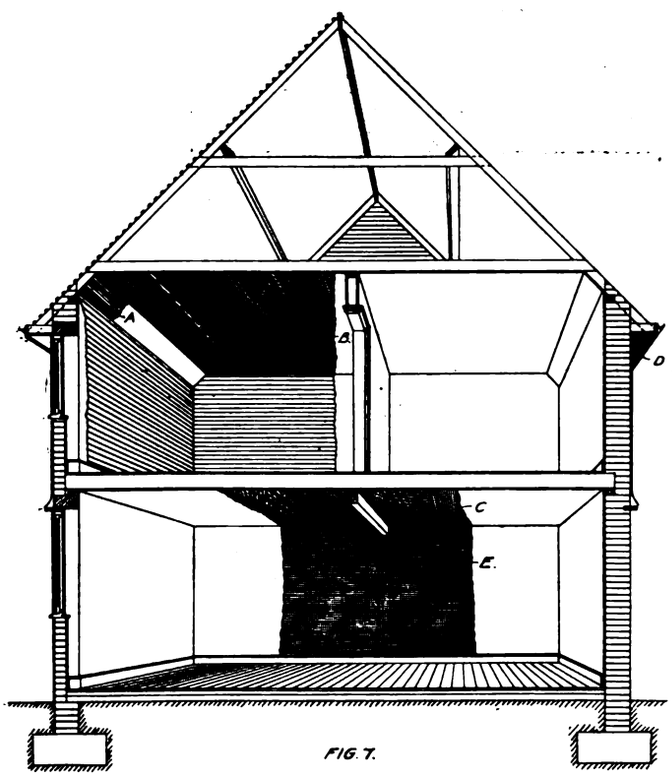


FIG. 7.

The lathing is easily bent and fitted to any curve longitudinally. It has been found particularly suitable for employment in false work to curved surfaces, ceilings, vaults, &c., as owing to its strength across the rolls it is possible, where roof trusses are not too widely spaced, for the lathing to be used as a sort of self-centering and attached to the principals only without intermediate supports. Should the spacing be very wide it is easy to suspend intermediate curved rods from wire stirrups and then to clip or tie the lathing to the rods. When the Weston-Reuter patent lathing has to be fixed to beams supporting concrete floors it is done in the manner just described for widely-spaced principals—that is, it is fixed by means of clips or binding wire to suspended steel rods.

The method of application is simplicity itself. In the case of vertical surfaces the roll is unwound on the floor in sufficient lengths to reach the top of the wall, and it is then fixed to the studding by means of staples, beginning at the top. For ceilings, a staging is required of such a height that the workmen can comfortably hold the lathing tight up to the joists while fixing; the roll is unwound and pushed along the staging as fast as the workmen can fix it. The lathing is, of course, equally suitable for external use. The Weston-Reuter Co., Ltd., of 61 and 62 Gracechurch Street, E.C., who are the manufacturers, inform us that supplies are obtainable from all builders' merchants.

General.

Messrs. Thomas Glenister, Ltd., of Temple Chair Works, High Wycombe, are enlarging their works in three contracts, and the first contract has now been let.

Mr. H. Raven, surveyor to the Hucknall (Notts) Urban Council, has been appointed surveyor and water engineer to the Long Eaton Urban Council. There were 171 applicants.

A representative exhibition of modern British art will be opened at the Whitechapel Art Gallery, High Street, E. 1, in March, and the trustees are inviting artists to send not more than three works. Sculpture, paintings, and black-and-white will be shown. The trustees undertake the carriage of all works of art and insurance against all risks. The exhibition will remain open about five weeks.

At a meeting of the Halifax Town Council recently the Waterworks Committee asked for authority to proceed forthwith with the work of constructing the Park Road Baths. During the discussion it was stated that the alterations would probably cost £10,000, and several members objected, as no grant would be received from the unemployment scheme. Eventually the Council approved the proposal by twenty-five votes to fifteen.

Messrs. Sprague-Haycock (Printers), Ltd., 69 and 70 Dean Street, W. 1, have sent us a hanging calendar, the doggy headpiece picture of which would ornament any wall. It is a most admirable example of colour work. This firm are lithographic, letterpress, and photo-litho printers, as well as artists and designers. To our readers they may be most familiar as the proprietors of the "Ink-Photo" reproduction process, a process which has enabled this Journal to score so many successes in its inset illustrations. The quality of their whole output may be gauged from the examples of their work which appear week by week in THE ARCHITECT.

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VOL. CVII.—2775. THE ARCHITECT FEBRUARY 24, 1922

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Shop-Fronts.

It is only a month or two since we were publicly assured that the art of window-dressing consisted in putting nothing in a window which was not within sight of the spectator, and that any exhibit placed more than seven or eight feet from the ground was to all intents and purposes wasted. If this is the case—and the matter was put forward as a commercial certainty—what becomes of the plate-glass fronts which have been the bane of commercial architecture during the past twenty years?

The question instantly arises, What can be put in their place? That must, of course, depend upon the size of the shop in question. If it takes the shape of a single- or double-fronted house its treatment must be suitable to a building of modest dimensions; if a large store is under consideration, with a uniform façade extending for some distance in a single block, something in the nature of pilasters might be introduced to give a fitting architectural setting, with windows treated, only on a larger scale, somewhat like those of a Renaissance palace, only brought nearer to the ground. Such treatment would, we believe, be a commercial success, as well as a move in the right direction from our point of view. Now and again, in a district of recent origin, a row of small shops will be treated in the manner we have suggested. In one such case the houses are of good red brick, four-storeyed, and of pleasant elevation, recalling the Georgian shops of an old country town such as the late Hugh Thomson imagined for the dwelling of Miss Bates, with a broad shop window slightly bowed below and casement windows above. In the older examples, adjoining shops are frequently—indeed usually—not uniform; but where such shops are treated as a row, a unit, uniformity, or symmetry of difference, is essential.

And is the result a commercial failure? Far from it. A few good things, well displayed and suggesting other pleasant purchases within, are far more attractive than a larger number; the best shops of Paris and Bond Street know it, and a Hanover Square milliner is content with a little window and its subtler charm. To appeal to the imagination is the supreme feat of the commercial advertiser; and if Macaulay expected a decent reticence in his tailor and his bootmaker, his tailor and bootmaker were clearly responsible for his standard of perfection.

The small shop window, then, can be an asset, the modest display of goods an advantage, provided that display suggests not poverty of stock but riches undisclosed. What, then, of the large shop of popular appeal, the great store whose immense displays are, we are assured by the expert, lost unless within easy reach of the eye? Marlowe's Jew of Malta revelled in jewels because they were "infinite riches in a little room"; it was the contrast between the little space and the infinite riches that went home to his oriental imagination. If the great store of our imaginations were to use in its buildings the psychological insight of the best advertisements, if it were to lure its customers inside by the display of few things suggesting many, the chief architectural problem of our shopping centres would be solved. Stone superstructures rivalling the Italian palazzi in size and weight would no longer appear to rest on sheets of plate-glass; sincerity, which is of the essence of architecture, would reassert her power; and the triumphs of modern engineering would not be lessened by an alliance with the principles of structural truth.

Another psychological factor must also be taken into account. The cult of the old or old-looking, in and for itself, has never been so widespread as in England to-day. Every curiosity shop, every dealer in "period furniture," knows it, yet the knowledge has rarely been acted upon in the architecture of our cities. Many street views of old London in the Crace Collection would supply models for the carrying out of a block of shops such as those in Cheapside before the Fire, and the announcement of the opening of a modern store designed on the lines of an older London street would be in itself a spur to public curiosity, an attraction to customers. Imagine the ground floor of Staple Inn the property of one shop instead of many, and you have the idea, though the date of building to be preferred would probably be eighteenth century rather than fifteenth. Anything more attractive than a series of shop windows like those of Messrs. Fribourg & Freyer, in the Haymarket, it is hard to imagine: and the judicious use of a facsimile of John Gilpin's shop in an advertisement would be an appeal to the imagination which few customers could resist.

London is not fortunate, as compared with other cities, in the possession of large numbers of old shops, such as we find at Salisbury and Winchester; but such as it still has are among the best of their class. Nor, unfortunately, is London the only city to have suffered from the erection of ugly modern ones, such as disfigure even the High Street at Oxford. All the more need, therefore, for the problem to be seriously taken in hand, not in the capital only, but by the provincial schools of architecture. The cult of the War Memorial has had its day, and a new field of effort will be needed. Cannot our students concentrate upon the shop-front, and make a serious effort to overcome the difficulties of the subject? In the current February number of the *Studio* is a reproduction of the U.S. Army Supply Base, Brooklyn, a subject which to the English ear is painfully suggestive of our temporary war buildings, of the faded stucco horrors of the White City, of the Brompton Boilers even, as the temporary sheds of the South Kensington Museum were long called. Yet the American building is superb, the embodiment of simplicity, suitability, and strength. It is some such spirit that should inspire the treatment of the modern shop-front, and thereby raise once and for all the æsthetic standard of the modern town.

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Illustrations.

CHURCH OF ST. MICHAEL, BITTERNE PARK, SOUTHAMPTON. Sir CHARLES A. NICHOLSON, Architect.
WAR MEMORIAL, BAILIFFE BRIDGE, YORKSHIRE. WALSH AND MADDOCK, Architects.

War Memorial at Bailiffe Bridge, Yorks.

The memorial garden is situated in the centre of the village, between the Huddersfield and Bradford Road and Victoria Road, to the south of the Council School.

A low stone wall, with copings and iron railings and gates surrounds the garden. A pleasing contrast with the usual method of walling stone in regular courses and even colour, like stock bricks, has been obtained by the skilful way in which stones of irregular shape, size, and colour have been used, both in the boundary walling and in the terrace and pavilions.

Although the site is irregular in plan, this is to a great extent overcome in effect by the formal layout of the scheme, which is a square surrounded by wide flagged paths, and intersected diagonally by paths leading from each of the four entrances to the central monument. The spaces between these paths are turfed and bordered with herbaceous plants and formal shrubs. The irregular spaces between the outside of the square and the boundary walls are planted with evergreens and flowering shrubs, which will in time form a pleasing background to the formal setting of the monument.

At the north side a broad flagged terrace and a pavilion at each end of a central pergola help to conceal the unsightly buildings of the Council School, and will at the same time afford a pleasant resting-place and shelter, and a fitting background to the monument.

The central figure of the scheme is the monument, which stands upon an octagonal platform 21 ft. across, surrounded by a stone parapet and approached by three steps opposite the four intersecting paths.

The monument is of Portland stone of Georgian character, 15 ft. high and 4 ft. square, with raised panels in each face divided with a moulded and carved truss at each angle, terminating under the cornice into a lion's head and foliated swags. Above this it becomes octagonal on plan, and finally forms a circular base for the flagstaff, which springs from a boldly carved acanthus leaf.

The flagstaff is 35 ft. high and 6 in. diameter at the base, of steel with ball bearing. This was made in America, and is similar to the one upon the monument erected to the memory of ex-President Roosevelt.

The inscription upon the panel opposite the entrance from Huddersfield and Bradford Road is as follows:—

1914. 1919.

To the Glorious Memory of the Men from Bailiffe Bridge and those who worked at Clifton and Victoria Mills, also Flush Mills, Heckmondwike, who, in the Great War, fought, fell and conquered, this Monument was erected by Sir William and Lady Aykroyd, of Cliffe Hill, Lightcliffe.

A.D. 1921.

"So they passed over and all the trumpets sounded for them on the other side."

And, upon the other three panels, the names of the fallen are cut in alphabetical order. Over each of the above panels there is a boldly carved swag of laurel leaves.

In the centre of the back wall of the pergola on the terrace is the following inscription:—

In thankfulness for Victory, for Peace Restored, and for the lives of those returned from the War in safety, this Garden was presented to the People of Bailiffe Bridge by Sir William and Lady Aykroyd, of Cliffe Hill, Lightcliffe.

A.D. 1921.

The work has been designed and laid out by Messrs. Walsh & Maddock, architects, of 10 Harrison Road, Halifax, in conjunction with Mr. Caldwell Spruce, of Leeds, as sculptor. The building has been carried out by Messrs. Jagger, Ibbitson & Co., of Brighouse; the carving by Messrs. J. & H. Patteson, of Manchester; the ironwork by Mr. Albert Halliday, of Baildon; and the lettering by Mr. M. Noble, of West Vale. Mr. Burn, of Leicester, has formed and planted the garden.

Notes and Comments.

Temples of the Stone Age in Malta.

Some most interesting aerial photographs have been given in "The Times" of temples of the Stone Age which have been discovered in Malta and Gozo by Professor Zammit, and which seem to consist of a number of elliptical courts connected by a central way, and bearing a rough general resemblance to diagrams of some forms of insect life. The photographs show four of these temples, only one of which has been examined by Professor Zammit. This consists of a number of elliptical chambers, the largest of which measures 60 to 70 feet across, and are surrounded by walls of some 7 feet in height. In this temple are found niches with flat stones, which are presumed to form altars, and some of which are ornamented with spiral forms. There are also friezes of animals, goats, bulls, and a sow carved in relief, as well as statuettes of human forms believed to represent both gods and priests. The majority of these are extraordinarily obese, a fact which is supposed to have some hidden significance. At a later date these temples seemed to be used by the Neolithic people as sepulchres.

In Malta a number of stone spheres have been found which it is conjectured formed the means by which some of the larger slabs were moved, and may have been the method used in the construction of such monuments as Stonehenge. The further results of Dr. Zammit's investigations should be productive of some very interesting matter.

The Example of Dundee.

A prominent builder and quarry-owner in Dundee is negotiating with the Corporation to take over one of the building estates acquired by them for the Government scheme in order to erect 200 tenement houses. We gather from the reports that the contractor has spent a considerable sum in opening up new quarries to provide stone for the Government scheme, which has now been abandoned, and, in order to utilise the quarries opened and to provide work for his men, he proposes to build 200 tenement houses to be let at economic rents. It appears that the sanction of the Scottish Board of Health is required, but that it is unlikely to be withheld, though stipulations as to the class of house to be provided are raised. We consider Dundee is fortunate, but do not quite understand the reason that the Department of Health which gives no subsidy should have any say as to the nature of the provisions to be made. We understand that one of the points insisted on by them is the provision of baths; but, desirable as that undoubtedly is, the chief question seems to be, Who is paying for the venture? and whether the economic rent which can be obtained will cover the provision of baths? The whole question seems to be one of finance, and, if houses are required, it is better to have houses without baths than no houses at all. The Department, however, seems to be in the happy position of being able to dictate without responsibility.

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"The Gate of Remembrance."

The Rev. H. D. Wilkins, D.D., the Rector of Westbury-on-Trym, has written a pamphlet to confute the claims made by Mr. Bligh Bond in the "Gate of Remembrance," published in 1918. As will be remembered Mr. Bligh Bond, who had given much study to the subject and had permission to excavate at Glastonbury Abbey, claimed to have discovered the position and dimensions of the Edgar Chapel through the process of automatic writing so well known to us during the rage over the planchette many years ago. In this case it was stated that the communications came from one John Alleyne, whose Latin the rector tells us is curiously defective. Both the rector and Mr. Bligh Bond know Glastonbury well, and it would be most interesting to outsiders to hear them discussing the points raised before, let us say, a representative meeting of the R.I.B.A. The Rector himself is a member of the Psychical Research Society, but considers the "revelations" of John Alleyne as being unworthy of credence. The rector's conclusions are pithily expressed: "In the automatic script, relating both to the Edgar Chapel and the Loretto Chapel, the subconscious mind of the sitters may have been responsible for producing stored-up knowledge and erroneous opinions based on ill-digested historical data."

But throughout this script there appears to be too much evidence of conscious effort and readjustment, in spite of the sitters' evidence that they aimed at "passivity"—and may even think they attained it, for it to be attributed to the subconscious.

There is nothing supermundane in the whole of the script, and absolutely no room for cosmic memory (whatever may be the definition of that vague postulate) or for discarnate marks or any other discarnate entities. "There is no message from within the veil," all that is true in the script could be gathered from historical data or reasonably conjectured by intelligent observations of existing facts and conditions." In this last sentence the pitfall which is evident to the outsider, but not to the enthusiast, is clearly stated. Those "behind the veil" usually either seem to spend their time in making absolutely useless revelations or else they are so carefully led into the way they should go from this side of the veil that their revelations become suspect. We have little doubt that Mr. Bligh Bond could have inferred all that was "revealed" to him under more comfortable conditions and possibly with the stimulus of black coffee. But if we are wrong in this and Mr. Bligh Bond is right why, we ask, should he not give us further exhibitions of his skill and ability in obtaining archæological information from "behind the veil." The City of London with its successive layers of buildings covers many secrets, and John Alleyne cannot be the one solitary spokesman of the unseen world, nor are the records of Glastonbury Abbey the one worthy subject of such investigation. The rector simply condemns this as a spurious example of Psychical Research, and one likely to throw undeserved discredit upon it, but it may also be possibly taken by others as an instance of the futility of psychical research as a whole.

The Parthenon.

"The Times" gives an interesting article from its Athens correspondent on the restoration of the Parthenon, which, it says, can be only fitly criticised by examining the results obtained in other work of the same nature carried out in recent years in Athens, and which include the Propylæa, the Temple of Nike Apteros, and the Erechtheum. Of these, the Propylæa has only been patched up and strengthened with the utmost care and thoroughness, and the results have been entirely good. The Temple of Nike Apteros was restored or practically rebuilt after 1836, as its component parts had been used for the erection of a Turkish bastion. Few parts were missing, and with the exception of a few new marble slabs in the walls and steps nothing was added. Broken corners and missing surfaces were replaced with red brick and plaster. The result looks unsightly as compared with the Propylæa because of the brick and plaster additions and that of a slab of the frieze where a cast was substituted for a missing part. The Erechtheum was restored with more additions, but was on the whole successful. The missing parts were replaced with marble, which has already begun to colour. One of the caryatid figures is almost entirely a restoration, and was carried out under the direction of the German architect Imhof.

From these cases the writer comes to the conclusion that what is proposed in the case of the Parthenon should not be impossible to achieve nor be unsuccessful in its result, but he says that if, as is proposed, the missing drums of the columns are to be replaced with coarse grey limestone and broken surfaces patched with plaster the effect would be unsatisfactory. He also says that entire trust should be placed in M. Balanos, a conclusion somewhat difficult to understand when the writer condemns what we take to be the exact method proposed.

Mural Decorative Art.

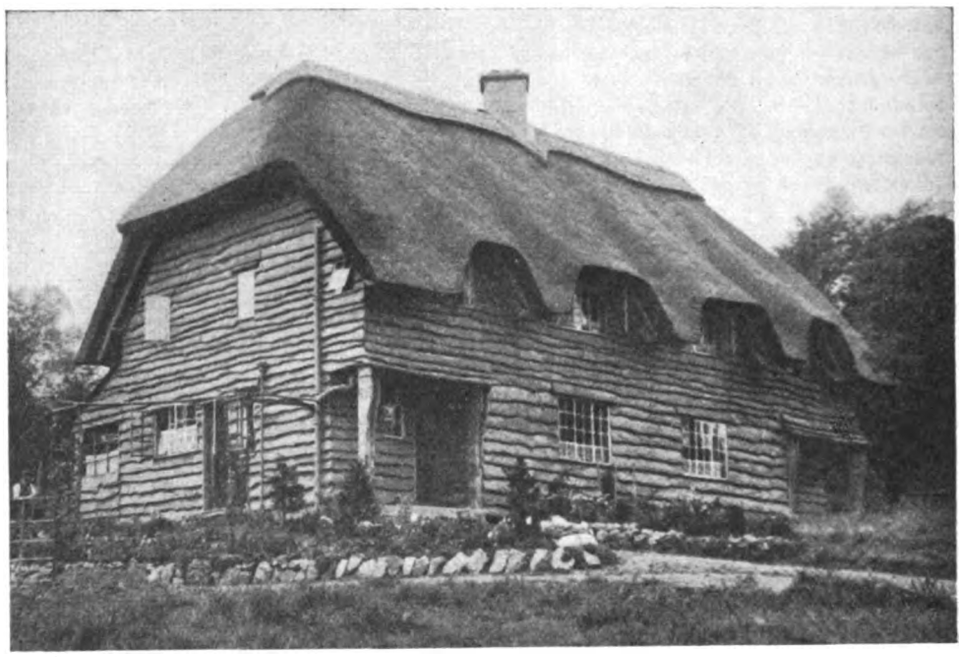
The President and Council of the Royal Academy, with a view to promoting the arts of design connected with the decoration of buildings, propose to hold an Exhibition of Decorative Painting and Sculpture at Burlington House in January and February 1923. The Exhibition will have a twofold object: in the first place, to direct the attention of the public, and especially of those who are concerned with the erection and adornment of public buildings, to the important part which the arts of painting and sculpture should take in architectural schemes, by showing what British artists can contribute to this end when suitable opportunities are offered to them; and, secondly, to suggest to younger artists and students the great possibilities of these decorative arts for the expression of the thoughts and feelings of the community at each turning-point in its history.

The Royal Academy schools have recently started the study of decorative painting on a large scale, and other schools of art are working in the same direction. The President and Council think that the time has now arrived for a public review of our resources and openings in this field of art, and they therefore hope that civic authorities throughout the country will take a prompt and practical interest in the scheme of the Exhibition, which will include works in painting, mosaic, tapestry, or sculpture for the permanent decoration of buildings, and designs or cartoons in drawing or painting, models in plaster, &c., for such decorations. They are confident that with suitable encouragement many of our younger artists will be found capable of carrying on and developing the great traditions of these once honoured, but now neglected, arts.

Decorations designed as suggestions for imaginary buildings or spaces would be acceptable for the Exhibition. At the same time, with a view to the practical encouragement of artists in this direction, the President and Council would be glad to know of any schemes of decoration which municipal or other authorities either intend or might find it possible to put in hand, and would hope to receive information, with details of the measurements, lighting, &c., of any definite spaces in buildings which would be available for decoration with subjects of local or national interest by an artist or artists selected by open competition; it being understood that such authorities would not be bound in any way to accept any of the competing designs.

The modern understanding of the high position and value of mural decoration—of its part in the rhythm and harmony of an architectural design, and its power of commemorating the spirit of a race—is immediately due to the work of Puvis de Chavannes in France. But it should be remembered that he was only reviving, though with the peculiar force and freshness of his genius, the spirit of decoration as it was known to the mosaic artists of the Byzantine period, to the mediæval artists who adorned our cathedrals with painted and sculptured scenes from sacred and national legends on roof and wall and window, and to the great Italians of the Renaissance.

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NEW THATCHED COTTAGE AT REDNAL, NEAR BIRMINGHAM. J. W. WILSON, Architect.

The house famine has prompted a number of departures from the usual thing.

The picture shows a pair of thatched cottages recently erected. They are built on the Canadian backwoods style, on piles, and are *constructed of wet elm* inside and out. The wood shrinks as it dries, and the weight of the roof presses the joints close again. All the outside "walls" have the rough edges left on. The inside partitions are of sawn elm, uncovered.

Each house has three bedrooms, bathroom, and clothes closet.

The houses have been built by the Austin Motor Co., Northfield, under the supervision of the firm's architect.

Correspondence.

"Ad Quadratum."

To the Editor of THE ARCHITECT.

SIR,—How your article on "Geometric Proportions in Architectural Design" in THE ARCHITECT, November 18 last, can be quoted as an approval and acceptance on your part of Macody Lund's system "Ad Quadratum," I cannot understand, and I shall have much pleasure in giving that particular newspaper your views as stated in your letter of January 31.

As you say your article is entirely non-commital and shows that you have considerable scepticism about the whole matter.

I am sorry to say that I am so busy at present that it is quite impossible for me to spare the time to write you an explicit article on the subject. I can only give you my own view in a few short lines.

The book contains a great many incorrect diagrams and inaccurate drawings and statements. I have tested most of the material, and compared it with other drawings of the analysed cathedrals, and the result of my research I have given in two articles, published in "Byggekunst," the official journal of the Norwegian architects, later reprinted together with a third article in a little leaflet, which I have the pleasure to send you enclosed.

I shall take one example showing the lightheartedness which is characteristic of the author's way of getting at conclusions.

He gives in his book a section of Notre-Dame in Paris, and goes on to show that this section is based upon a square, which is divided into six equal vertical parts, the nave making up for two parts, and each of the aisles for one part. But this is not so. The two aisles are not of the same width, and the nave itself is much wider than twice the aisle. The difference amounts to at least two metres. The height of the triforium and other proportions are also incorrectly given in this drawing. In the Norwegian edition the author says that this amazingly wrong drawing is taken from Violet-le-Duc, but in the English one this statement is omitted.

On this incorrect drawing Macody Lund builds up an elaborate network of circles, squares, diagonals, and angles in order to show that the section of Notre-Dame in the minutest detail is correctly designed "Ad Quadratum," what it is not.

On similar lines I could demonstrate a great many faults throughout the book—in fact, there are so many that it is rather difficult to tell whether any of his statements are scientifically correct or not. If I were to criticise Macody Lund's book as a member of an official committee I think I should ask for a revised edition, wherein all incorrectnesses were withdrawn. It is rather hard on the members to expect them to examine, prove, and compare every single diagram and drawing in the book as they now must do. According to my opinion it is quite impossible to take the author's statements as granted without a thorough test.

Macody Lund holds that he has rediscovered the old system for all sacred art of building from the Temple of Solomon till the Renaissance. But *his* is not *one* system but a great many different ones—each time used in different ways and in different combinations. You get in turn all kinds of geometrical figures, the circle, the square, rectangle, pentagon, hexagon, octagon, and so on, as the case may be. And his measures are somtimes taken outside the walls, sometimes inside, and sometimes somewhere in the middle of the walls. It very often occurs that it suits him to start measuring outside the walls in one end of the building, while he must finish inside in the other to obtain the wanted proportion. In the sections you will find the base-line placed either over or under the top of the bases of the columns, and if it is impossible to prove that the system has been used in the right way, the author simply declares that the medieval designer has made a deplorable mistake (as at Cologne).

If a diagonal does not meet an axis at the top of a capital, or an arch, the crossing may take place at the bottom. But as everybody knows, every gothic building can be divided into a great many vertical axes and horizontal parts, that is to say, you get a rather dense net of vertical and horizontal lines, and if you start from one certain point and draw lines at a given angle, say 60°, 63°26, 45°, or what you like, there is all probability that you will cross one or other more or less interesting and important point. I suppose this is one of the chief reasons why so many

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different writers can claim that their own special system is the only right one.

You will observe that if Macody Lund is right, his system has, according to him, been used in all times in all places. It adapts itself to the temples of Greece, to the twelfth-century wooden churches in Norway, and to most, if not all, of the Gothic cathedrals of Europe. So you see there is plenty of room for varying the scheme. With this system you will be able to turn out a Parthenon just as well as a Notre-Dame, the cathedral at Cologne or Westminster Abbey, according to taste and requirements. I have seen it applied to altar-pieces with great success, and to matchboxes and whisky bottles. An American writer has published a very handsome book on the square in relation to Greek vases of all shapes. It seems to be a very useful guide in many cases!

With the aid of this system Macody Lund informs us that he is able to tell what the cathedral of Trondhjem looked like in the second half of the thirteenth century—"in the main." In the Norwegian edition of the book he uses the expression "in all essentials," but in the English one he has been wise enough to modify himself a little, and uses the term, "in the main."—Yours, &c.,

HARALD AARS,
Architect.

Kristiania, Fagerborggaten 13, February 12, 1922.

Unification and Registration.

To the Editor of THE ARCHITECT.

SIR,—There is every prospect of the Council's actual proposals in the matter of Unification being laid before the members of the R.I.B.A. long before the next general meeting for consideration of the matter can be held; but it will be well to correct some of the imaginary ones at once. In the first place, there is the now familiar fiction of the words "all architects" used in the sense of all who call themselves architects being admitted to the Institute. Happily, those who deal with the business of the R.I.B.A. know exactly what an architect is, and are in no danger of mistaking an undertaker for one. Those who, all too credulously, accepted this fiction should look through Scheme A—published in the Journal for May 28, 1921—and they will be reassured.

Then, there appeared at the meeting on the 7th an impression that the suggested temporary procedure for admission to the R.I.B.A. was actually to be permanent. This is not the case, and a reference to Scheme A makes it clear.

One speaker referred to all outside architects being admitted to the class of associates. It is scarcely necessary to explain that this is not intended.

What one would like to hear explained is why Mr. Cross and Mr. Hubbard, after preaching Registration by Statute steadily for a great many years and addressing meetings up and down the country on it, are now suddenly convinced that it is an impossibility. It is a view that many of us cannot share. Also, why Mr. Perks, having distinctly stated that a Registration Act will "never" be obtained, asks us to postpone Unification until such time as a Registration Bill becomes law. It is an odd proposal, but perhaps he has some ground for it that is not apparent.

As an Institute man, I naturally wish Unification to be in the hands and under the direction of the Institute, and not in the hands of a body set up by Act of Parliament. May I give just one instance of how registration under an Act operates? It comes to me from Mr. Hurst Seager, and relates to New Zealand, where registration by statute is an accomplished fact. A builder applied for registration, was refused, applied to the Court under the terms of the Act, and was placed on the register because the judge was satisfied that he practised as an architect. It is apparent at once that this would not happen under Scheme A for Unification within the R.I.B.A.

May I point out, especially to the younger men in opposition, that the same warnings and alarms as the present ones were heard when the Class of Licentiates was formed about twelve years ago: it was stated that the prestige of the Institute would suffer, that men of good standing would withdraw, and all the rest of it. I think no one will contradict me when I say that the Licentiates have justified the measure of confidence reposed in them, that they have shown great abilities, and that their alliance with the Institute has been of much value to it. So much is this the case that it is generally felt to be due to them that they should have a larger share in the management of, and responsibility for, the affairs of the Institute.

Is it too much to ask for the opposition that is being so strongly and, as I think, unfairly pushed to be held over until the Scheme of the Council in detail is published? At present the talk about the matter is wide of the mark, and the desire of those who are working the opposition seems to be to prevent the Council from being given time to develop its Scheme and place it before the members.

A thing not sufficiently realised is that we have legal power to prevent any outside architect from using initials that would suggest membership of the Institute. A Registration Act might give us the power to prevent anyone not on the Register from using the designation of "architect." Which has more value?—Yours, &c.,

ARTHUR KEEN,
Hon. Secretary,
Unification and Registration Committee.
Royal Institute of British Architects,
9 Conduit Street, W. 1.

The Overcrowding of the Profession.

To the Editor of THE ARCHITECT.

SIR,—In view of the general discussion which has been taking place recently in connection with the numbers entering the architectural profession, and the suggestion made that the schools are unduly encouraging students to enter a profession in which there is little chance of their obtaining a reasonable livelihood owing to its already overcrowded state, the Council of the Architectural Association has asked me to issue the following statement as to the steps taken to ensure that only those who show an aptitude for Architecture, and are likely to become efficient and useful members of the profession, are allowed to enter or remain in its schools.

In the first instance, no candidate's application for admission will be considered unless he or she has attained to a good standard of general education, equal at least to the Senior Oxford or Cambridge Local examination, or London Matriculation. Applicants who produce the necessary evidence of having reached the standard of general education required, are interviewed, and at once advised if it is considered that they are not fitted for the architectural profession.

Approved candidates are allowed to sit for the Entrance examination, which consists of the following subjects:

1. English composition.
2. Freehand Drawing from the Cast.
3. Mathematics (Algebra, Quadratic Equations).
4. Geometry (intersections of solids).

A "Pass" must be obtained in subject 2 and in any two of the remaining subjects.

It is not suggested that the examination is an infallible test of the candidate's suitability, but it does afford an opportunity of obtaining at least some indication of the ability and type of mind of those sitting for the examination, and a fairly broad view is taken in arriving at a decision as to which candidates are to be admitted, and which not.

Those entering the school do so on a year's probation, and if they do not justify their admission during that period they are asked to leave, and are advised to take up some other calling.

I think it will be seen that it is not an easy matter for a student to enter our schools, and that it is not the case that admission is granted haphazard to anyone who cares to ask it, irrespective of suitability for the profession of Architecture.

If the architectural profession is overcrowded, it is certainly not overcrowded with well-trained men, and, as evidence of this, I may state that even during the worst times there is little or no difficulty in obtaining paid employment for those leaving our schools on completion of training.—Yours, &c.,

WILLIAM G. NEWTON,
President.

Architectural Association,
34 and 35 Bedford Square, W.C. 1.

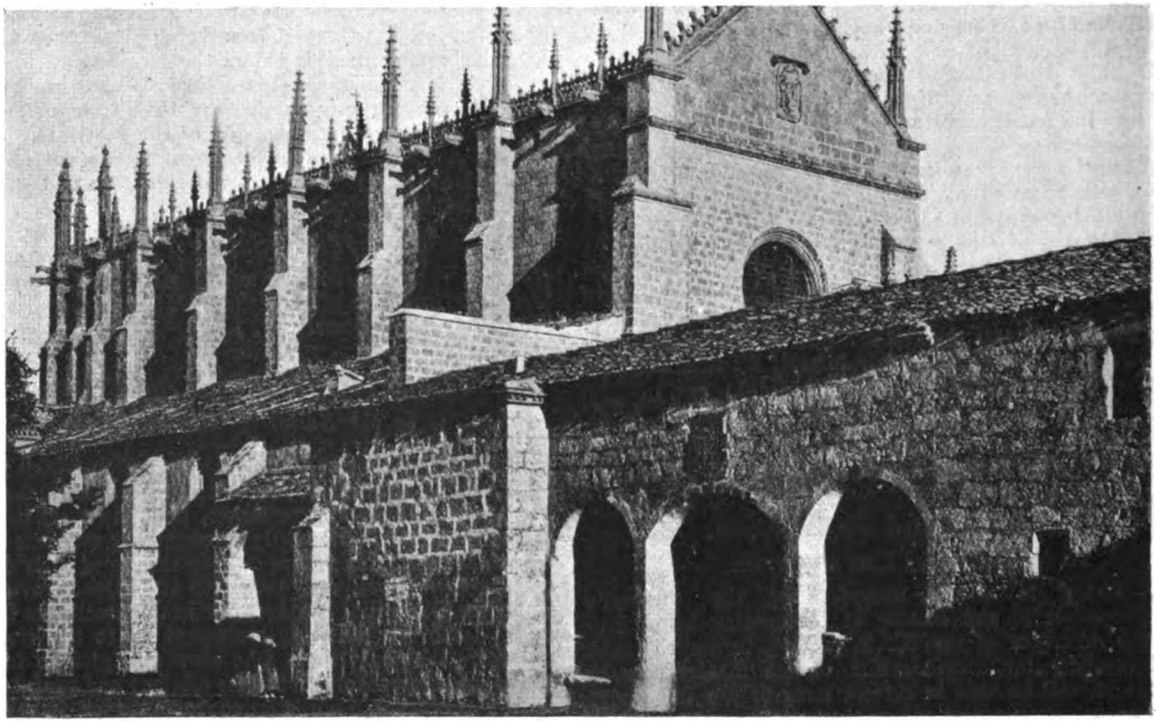
The Société des Architectes Diplômes par le Gouvernement have decided to place at the disposition of the Council of the Architectural Association a grand medal to be presented to the best student (man or woman) who has received the diploma of the A.A. School.

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The Cathedral of Burgos.—II.

By Selwyn Brinton, M.A.

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CARTUJA DE MIRAFLORES.

In my former notice on this Cathedral, published in The Architect of January 13 last, after discussing the remarkable triforium and clerestory I took my reader into the "trascoro," and directed his attention to that marvellous "cimborio," or open lantern rising into the roof, which is one of the marvels of Spanish architecture. Standing here in this transept (or rather "trascoro") beneath the great lantern, we have behind us the choir, which occupies three bays of the nave, with its wonderful stalls, 103 in number, executed between 1497 and 1510 by that great master of his art, Filipe Vigarni, often called de Borgona, their subjects being scenes from the "Acta Sanctorum" and New Testament, while the Old Testament gives their subjects to those in the canopy above. Comparison with those of Toledo by the same Master is here, to those who know both Cathedrals, almost inevitable; but, in my judgment, the quality of the wood carving here fairly holds its own.

The recumbent figure of Bishop Maurice in the centre of the Coro is of exceptional interest to ourselves, both from the fact that the great Bishop of Burgos was the founder of her Cathedral and that he was by tradition an Englishman. He is said to have come over in the train of the English Princess Alienor, Queen of Alfonso VIII., had been Archdeacon of Toledo, then made Bishop of Burgos in A.D. 1213; and being sent, as I have mentioned, to bring back Beatrice of Suabia as bride for King Ferdinand had seen on his journey the Gothic creations of that time in France as well as Germany, and returned full of enthusiasm for his project of a great Gothic Cathedral in Burgos. This figure of the founder, in wood covered with metal plates, belongs to the period when he died, and has very considerable artistic merit. It was originally adorned with jewels, as well as enamel work and gilding.

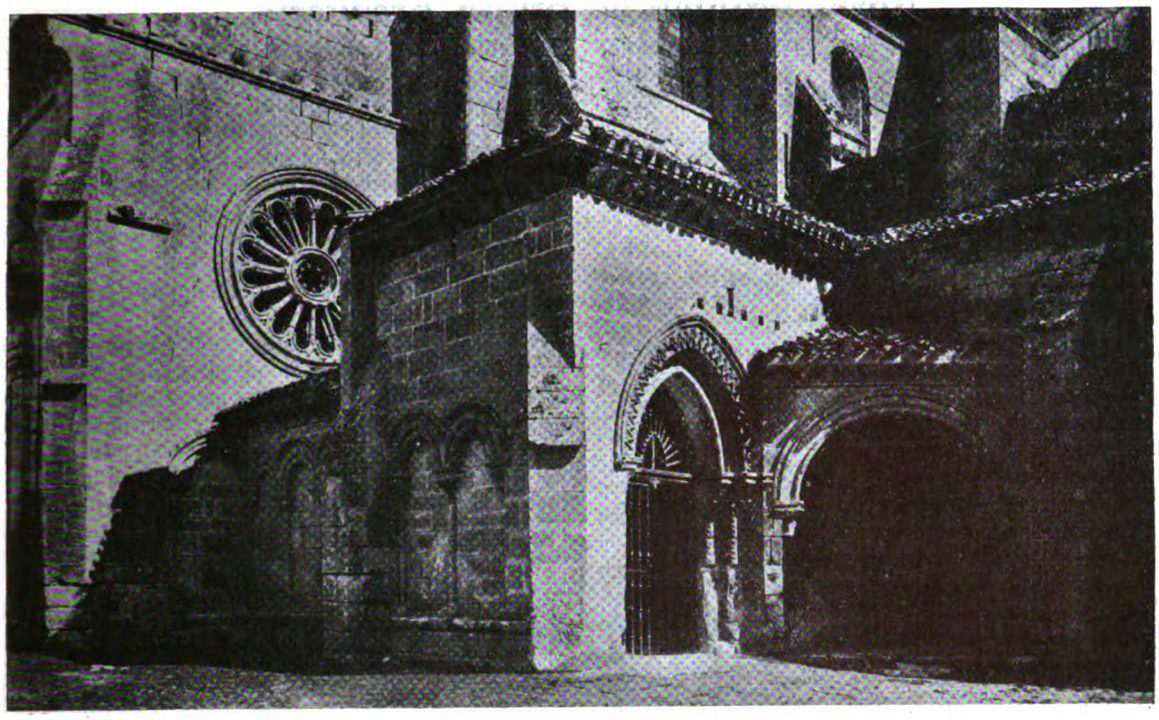
We pass through the "reja," a screen of beaten iron work, to enter the Capilla Mayor, and find ourselves in front of the usual "Retablo," or screen over the high altar, but in this case heavy in design, and very far from the detailed beauty which we shall find in that of Miraflores, or of San Estéban. At the back, however, of this Capilla Mayor, in what is called the "Transagrario," are a really fine series of reliefs in white stone, depicting scenes from the Passion of Christ, the sculptors here being Alonso de los Rios and that Filipe Vigarni whose work of an earlier date we have just noticed in the Coro. The three middle scenes of "Christ bearing the Cross," the "Crucifixion," and "Descent from the Cross," as well as the "Resurrection," are from the latter's skilled hand, and are, to my mind, unquestionably the best here. The late Mr. Street arrived at the same conclusion. "They are bold and spirited compositions, in high relief, of great richness of effect"; but, he adds, apparently without knowing these two are attributed to de los Rios, "Nos. 1 and 5 are not original, or at any rate inferior to and different in style to the others."

Especially to be admired here is Vigarni's noble figure of Christ in the relief of "The Resurrection." Spanish sculpture—as we may notice also at Valladolid—whether in wood or stone, was, unlike the Italian, essentially concerned with religious subjects; and there can be little doubt that, in both these materials, under Vigarni, it reached a very high level.

At this point we may leave the main building to enter those magnificent chapels which, although they may be excrescences to the original structure, add so much to its richness and sense of splendour. Very notably is this the case with that magnificent Chapel of the Condestable, designed for Don Fernandez de Velasco, hereditary Constable of Castile, by the German architect Juan de Colonia. The tomb of the Constable himself, covered by his recumbent figure, lies in the centre of his chapel, and beside it is that of his consort, with her pet dog curled at her feet, both these figures being of Carrara marble, and carried through with much richness and beauty of detail.

Architecturally the Chapel itself merits our study. It is octagonal in form, with elaborate tracery in its vaulting, especially in the cells between the groining ribs, which form by their intersection a star of eight points. Mr. Street considers that the architect, Juan de Colonia, built also the chapel of the great Carthusian monastery of Miraflores, without the city; and that his work is peculiar in the sense that, though German in birth and

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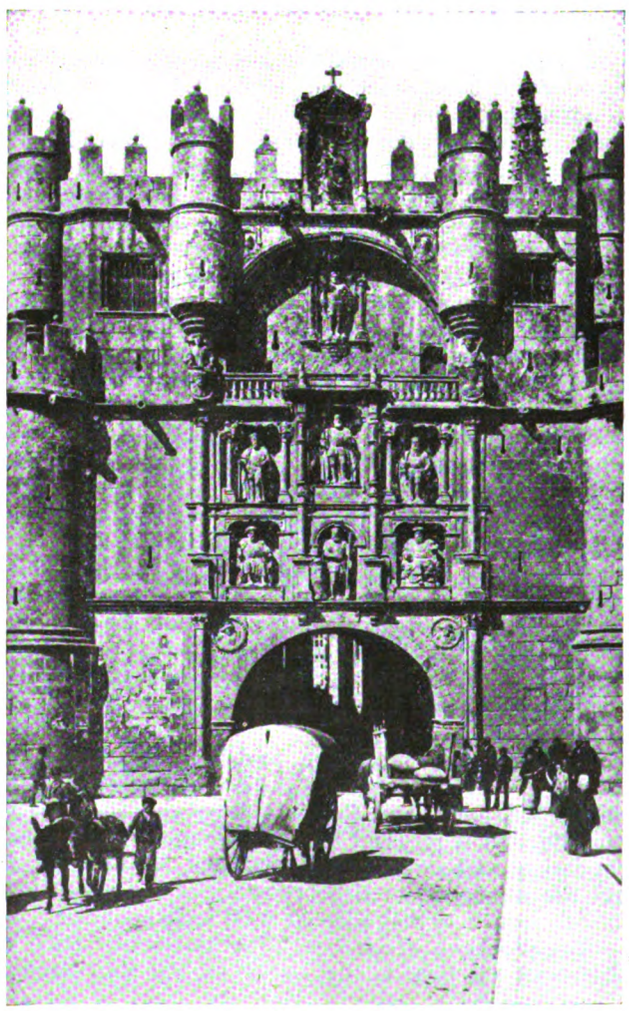
LAS HUELGAS.

training, when he come to Burgos "he was following to a great extent Spanish tradition, and largely aided in all the better portion of the detail by national artists, among whom the greatest was perhaps Gil de Siloe," the sculptor of those marvellous sepulchral monuments at Miraflores. But every detail of this chapel of the Constable seems to add to the impression of richness, of—one might say—Castilian pride. Below the bays of the octagonal chapel each recessed arch has its coat of arms with a surrounding fringe of shields. Above the windows, of three lights, have rich flamboyant tracery, which reappears around the altars: even the "reja," or screen of the chapel, is a masterpiece.

We may go hence into the cloisters, which are of two stages and most extensive and beautiful in detail, giving access to various rooms, among which the Old Sacristy, a beautiful fifteenth-century room with a fine groined roof, is especially to be noticed. Burgos Cathedral contains some good Italian paintings,—among which a "Magdalen" in the Sacristy, put down to Leonardo, is in my judgment undoubtedly by Gianpetrino, and a very fine example of the "master of the half-figure."

In the exterior of the Cathedral on the west front the Puerta Real, with statues of Alfonso VI., St. Ferdinand, and Bishops Maurice and Astorio, is perhaps the finest of the many beautiful entrances, with above it a very lovely rose window, on either side of which rise the towers, pierced with rich tracery and detail. The Puerta Alta, or de la Coroneria, belonging to the thirteenth century, is no less profusely adorned with sculpture; the plateresque Puerta de la Pellejeria, leading to the north transept, is, of course, much later, and the fine Puerta del Sarmental, giving access to the south transept, may be compared in its decoration with the Puerta Alta, belonging to the same period, and being approached by a wide flight of steps.

It may be noted that, built on very uneven ground, the original plan for the Cathedral was a Latin cross, but this plan was interfered with later by the great chapels added, such as that of the Condestable. Yet, within and without, Burgos Cathedral is a miracle of beauty, of Gothic art transmuted by Spanish pride; and merits the legend proudly carved upon her west front: "Pulchra es et decora." The church of S. Nicolás, with its richly carved "retablo" (see earlier inset illustration), stands on the high ground above the west front; and visitors to Burgos cannot dispense with the visit to her two great monastic foundations, the Cartuja de Miraflores, built by Juan II. in 1442, with its superb sepulchral monuments, one of which appeared in the illustrations of my previous notice, and the yet older convent of Santa Maria Real de las Huelgas, founded about 1180, and in the centuries which followed one of the most famous religious houses of Spain, whose jurisdiction extended for miles around over a hundred townships and villages, and whose Abbess ranked—and I believe still does so—among the great ladies of Spain.



ARCO DE SANTA MARIA, BURGOS.

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Royal Institute of British Architects.

The eighth general meeting (Ordinary) of the Session was held at 9 Conduit Street, W., on Monday, February 20. Mr. Paul Waterhouse, M.A., F.S.A., president, occupied the chair.

The paper read was by Mr. Arthur J. Davis, F.R.I.B.A., and dealt with

The Internal Decoration of Ocean Liners.

After a brief glance at the historical aspect of ocean-going craft, Mr. Davis, F.R.I.B.A., devoted the greater part of his lecture to the extraordinarily rapid developments of the last twenty years.

It was in the spring of 1913 that the "Aquitania," at once the latest and the greatest of marine wonders glided from her berth into the same waters which, little more than a century ago, witnessed the first feeble efforts of Bell's Clyde-built "Comet." It is almost impossible to conjure up to-day a vision of this tiny vessel of 1812 by the side of the colossus of 1914, with accommodation for 3,250 passengers, together with a crew of 1,000; a floating population larger than that of a great many English borough towns.

Of the White Star liner "Olympic" it has been said that she is not so much a ship as a palatial floating hotel with every luxury that modern art in decoration and furnishing can provide; indeed, the simile of the floating hotel is somewhat inadequate; the term "floating town" more precisely meets the comprehensive idea of her construction.

An inspection of the interior of the "Olympic" means a walk of no less than nine miles. It is more than a third of a mile round her deck, and from waterline to bridge she is about as high as a six-storey building. She has eleven steel decks, seven of which are used by passengers. Each of the funnels is wide enough to take two railway trains running abreast, and they rise eighty-one feet above the deck.

This rapid development has brought about a complete revolution in the methods employed both as regards the internal planning and the equipment of these ships. With the inevitable necessity of specialising in many new directions, it has become the practice to employ experts to advise upon the various requirements of the modern liner, and not only does this apply to the actual planning of the habitable portion of the ship, but also to her decoration, furniture, electric light, heating, ventilation, and lift installations. The space for the important public rooms was so vast and the height of these rooms so great, that the expert knowledge of the architect was necessary to deal with the arrangement of these available spaces.

As an experiment the architect was first introduced chiefly as an art adviser, and it was considered that his duties should be confined within the limits of decoration and furniture. Having justified his appointment, he gradually encroached on other portions of the ship, and it has now been found advisable to bring him into contact with the ship-architect at the very early stages of the design. As it has been put rather appropriately, the ship is now in the hands of the wet and the dry architects. All the parts of her construction affecting her main lines, the great sweep of her bows, the laying of her keel, her superstructure and her navigating qualities, are naturally in the hands of the "wet" architect, whereas the "dry" architect is called in and consulted when it comes to planning her inside and finishing her public rooms and cabins.

Members of the profession, said Mr. Davis, have now become a virtual necessity in the completion of all large ships; not only are they employed in an advisory capacity, but it is usual for them to create and prepare the designs and supervise the contracts, as well as control the general decorative fitting up of the vessel in a similar manner to that adopted in all large buildings.

The problems which arise after the construction of the vessel has been finally settled by the ship-designer are, indeed, in many ways so precisely similar to those requiring solution on land that in some cases it has been found advantageous to employ quantity surveyors to take out quantities and measure up variations in exactly the same way as it is done on a land building. Again, this experiment has proved successful, and the general tendency is to bring in more and more the technical adviser, and we may see in the future sanitary and electrical experts dealing with their special trades under the control of the architect in the manner familiar to him in his own buildings.

Again, the immense addition to the tonnage of modern ships, although it has involved an increase in the size of the engines, coal bunkers, cargo and funnel hatches, &c., has not done so in a ratio proportionate to the addition of extra space available for the public rooms, the extent of which has been thus greatly increased. For instance, it is now possible to obtain long visfas through complete suites planned in the grand manner, even monumental and picturesque architectural effects being thus rendered possible.

It may not be uninteresting to give a short list of the public rooms required for the first-class accommodation of an Atlantic liner such as the "Beringaria," "Majestic," or the "Aquitania," each of which has eight floors or decks, communicating with one another by elevators, as well as several staircases. On the lower decks, in addition to the many staterooms, cabins, kitchens, and service rooms, &c., we find the great dining saloon (capable of seating from 500 to 600 persons), with an adjoining grill-room, foyer, and lounge, a large swimming-bath and gymnasium, Turkish and electric baths, and purser's office, &c. Above, on the upper decks, in addition to the main staircase and several lifts, we find the ladies' drawing-room and writing-room, a hall, lounge, and ball-room, the verandah café, smoking-room, exhibition gallery, barber's shop, book and flower stalls, while on the converted German liners a restaurant and winter garden were features of considerable prominence.

The second-class accommodation, which is, perhaps, hardly less luxurious than that of the first, is also placed under the control of the architect.

The artificially ventilated inside cabin, so often and so rightly objected to, is gradually disappearing, and ingenious arrangements are now contrived to enable even the innermost staterooms to receive fresh air and light, thus considerably enhancing their letting value. All the fittings of these cabins are especially thought out and constructed for practical utility, the style of decoration selected for the room being maintained throughout.

Methods of design, appropriate when used in connection with buildings, cannot be transposed without change and adaptation to the requirements of sea-going vessels. The architect who does not modify his designs to suit these special requirements will be seriously disappointed when he comes to view the result. The pitfalls to be avoided are legion, and many schemes which look very well on paper may prove to be failures when put into execution. Decorations, for instance, should not be designed without full consideration being given to the sheer and camber, which in certain portions of a ship are considerable. It is occasionally noticeable that inexperienced decorators arrange the cornices of a large room to follow the "camber" of the underside of the deck-line above, while overdoors, window bars, and dado mouldings are arranged horizontally. The effect thus produced is extremely unpleasant, and far more noticeable in execution than on the drawings. Another temptation to be avoided is to overcrowd a room with heavy ornament and meretricious decoration. This fault was very apparent on some of the earlier German liners.

Again, the factor of relative scale is of paramount importance. It is a well-recognised axiom that no matter how large the rooms to be dealt with on a ship may be, somehow the scale appears much smaller than that of a

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room of similar dimensions on land. The probable explanation of this is that the absence of heavy constructional piers, deep window and door recesses, &c., tends to diminish the monumental character. Hence heavy or incongruous ornament looks doubly out of place when applied to the comparatively light construction of a ship.

There has been some prejudice, especially among foreign companies, against the employment of plaster ceilings, but in ships such as the "Mauretania," "Laconia," "Alsatian," and "Olympic," where such ceilings have been tested, they have been entirely satisfactory. To specify plaster and carton pierre for ceilings, domes, coves and cornices may be safely recommended.

Other decorative materials—such as stucco, tiles, mosaic, scagliola and trellis—may also be used with discretion; but marble and brickwork should be avoided on account of their weight, not only in appearance, but in fact.

Vibration at sea is also an extremely serious question in fast-going vessels, and materials which are likely to scale off or crack should be avoided. The architect must never forget that a ship is designed primarily to be in motion, and, further, that a vessel not merely moves forward, but is subject to lateral roll and a countless number of other strains. This applies not only to the vessel herself and every object she carries, but also to her human freight. The two principal movements are pitching and rolling, and although the latter has been minimised on vessels of recent construction, where such innovations as anti-rolling tanks have been installed, these movements are still felt to a considerable extent in bad weather. As the horizontal section through the centre of the hull of a ship much resembles the shape of an elongated cigar, the pitch or plunging movement is naturally less noticeable than the lateral roll. It is wise, therefore, to design all the swimming tanks and baths so that their length is parallel to the long axis of the vessel, the movement of the water they contain trying to regain its own level being thus minimised. The same remark applies equally to the planning of staircases and companion-ways, which are easier to negotiate in bad weather when the direction is fore and aft, or, in other words, parallel to that in which the ship is moving. In these staircases, which should be substantially balustraded, and not too wide, it is advisable to avoid winders, as well as awkward turns. Easy flights with comfortable landings are virtually essential.

In a room where comfort is above all things desirable, it is advisable to avoid the exaggerated use of skylights and glass domes. With the exception of vestibules, galleries, and staircases, all reception rooms, wherever possible, should be lighted laterally. The principal objection to the use of skylights on a ship is that they are awkward to construct and difficult to keep air and watertight; they are not only liable to suffer from vibration, but they produce condensation, and wherever unstained glass is used a cold green light is reflected from the sea into the rooms.

It is impossible to over-emphasise the fact that conditions at sea are often very unpleasant, and that passengers, after braving the elements on the exposed decks, or sitting for hours on the promenade gazing at a far remote horizon, are only too glad to return to a cheerful room with comfortable surroundings, and for a time at least forget they are at sea. This remark will explain the desirability of introducing suitable fireplaces wherever possible, even though they only supplement the heating installation.

With regard to general decoration, it is of course impossible to lay down any golden rule as to what style or styles are the most suitable for a liner. Of recent years several attempts have been made to decorate all the rooms in the vogue of one particular period; but, although by no means unsuccessful, such treatment tends rather to monotony, and a variety is, therefore, more generally preferable.

Perhaps the best examples of Jacobean, Restoration, Georgian, Regence, Louis XV., Louis XVI., Adam, and Empire, if simply treated, are amongst the most suitable. But in these days, when we find ships which have been successfully decorated in nearly every style known to art, from Early Persian to Neo-Grec, an architect need never be at a loss to find a suitable period within which he can give a successful expression to his ideas.

The architect must in every instance consider the special conditions under which the ship he is dealing with is intended to travel. It is obvious that the requirements of a liner steaming between Liverpool and New York are entirely different from those of another bound for a tropical climate. In all such cases a special programme must come into force.

Long before the conclusion of hostilities the German submarine menace was well in hand, and new ships were being put on the stocks to replace the ill-fated vessels that had been sunk by the enemy. These post-war ships, some of which are now launched and ploughing the high seas, are designed on a somewhat different plan. The principal innovation is one which, although it may not directly concern the decoration, has fundamentally altered its main lines. The use of oil instead of coal as a fuel has greatly decreased the time expended in replenishing the fuel supplies, as a ship can now be refitted for her return journey in a few hours, whereas in the older vessels the coaling process takes several days; moreover, all the dirt and dust caused by the coaling is eliminated and the decorations and fittings are kept in better condition.

The great increase in the cost of building these post-war ships, owing to the advance in the labour market, has of necessity caused their designers to economise in every possible direction and to eliminate many delightful features which are not absolutely essential, but were merely introduced in the large pre-war ships to meet the competition of the foreign companies. The typical post-war ship is smaller and the tonnage less. The length is reduced from over 900 feet to 600 feet, the breadth from 90 feet to 73 feet, and the tonnage from 54,000 to 20,000. Efficiency and economy are the watchwords now in force. Swimming baths, gymnasia, theatres, have had, perforce, to go.

"Whatever our shortcomings may be as regards land architecture and decoration," said Mr. Davis, in conclusion, "we can reflect with justifiable pride that in ship construction the British designer holds the first place in the world's estimation. The vessels which have been built on the Clyde, the Tyne, or the Lagan, whether they be battleship, liner, or tramp, bear the stamp which marks them as being the aristocrats of the sea. The reputation of our naval confrères is so high that it is for us architects who are entrusted with the decorations of the interior of their ships to see that this standard is maintained throughout, and that our joint labours are worthy of that genius for naval construction which commands the admiration of the world."

Discussion.

Sir Westcott S. Abell, K.B.E. (Chief Ship Surveyor, Lloyd's Register) in proposing a vote of thanks, said they were indebted to the lecturer for showing how to combine successfully architectural requirements with structural requirements. Personally he thought that the greatest opportunity for the architect was in the dining saloon, which might be 100 feet square though only 10 feet in height. In the average run of ships there could be with advantage a closer co-operation between the naval designer and the architectural profession. One criticism he wished to make was that the decoration of liners failed to express the spirit of the ship as well as it might do. At sea, weight being the dominant factor, the architect ought to get his effects without any weight at all. The naval architect could give suggestions to the land architect in the matter of line. The underwater lines of a ship are the most beautiful in the world. Perhaps the development of a parabolic style might add to the simplicity of design.

Mr. J. Annan Bryce said he had been enormously pleased by the great progress made in the architectural design of ships. Mr. Davis's lecture showed what a large

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field was opening to the younger architects in the exercise of their profession. Anyone who went to sea in a vessel in which an architect has not helped and one in which he had would realise the enormous difference. There were still some departments into which the architect did not seem to have entered—the bathroom, for instance. It was hoped that just as various experts had been introduced already, so they would see them introduced into all.

Mr. H. W. Wills remarked that the lecturer had shown them successfully how the mere fact of being at sea could be obliterated. Yet it was open to doubt whether that result was the ultimate word in the designing of a ship. He had seen drawings of a yacht clubhouse in which the stone front had been tortured into the forms presented by the poop of a galleon and which had not a single vertical line. The effect, however, was undoubtedly very charming. To most people a ship conjured up the romantic associations of "Treasure Island," the Vikings and so on. He wondered whether it might not be possible to employ parabolic and other lines which would give the passengers the idea they were really at sea, and that being at sea was not a bad thing after all.

Mr. E. P. Warren thought it a pity that the present idea for decoration of liners seemed to be a sham. Surely the whole thing ought to be suggestive of the sea! A Corinthian column at an angle of 73 degrees was a most uncomfortable thing. He would like to see an architect let himself go on emphasising the lines of a ship.

Mr. Paul Waterhouse, in putting the vote of thanks, said that special thanks were owed to Mr. Davis for the generosity of his paper which let them all into some of the secrets and some of the successes of his work. As to use of certain lines suggestive of the sea, he would merely say that however much things may be moving in parabolic curves, the designer must come down eventually to a more or less flat table.

The vote of thanks was carried by acclamation.

Mr. Arthur J. Davis, in a brief reply, said that when he had been first engaged fifteen years ago he said to the directors "Why don't you make a ship look like a ship?" The answer was that the people who use ships were not pirates, Vikings, or the other romantic folk pictured by Mr. Wills, but were mostly sea-sick American ladies. His own experience of ocean travel was that after the first day you craved for a fire and a pink shade. Anyway, the directors having stated their ideas, it is for the architect to follow up their main lines. The people who like the sea and enjoy being on ships form a distinct minority. All that can be done is to provide floating hotels. Except under exceptional weather conditions the Corinthian columns mentioned by Mr. Warren would remain more or less vertical on the latest types of liners. But the evolution was not yet complete.

A Special and Business General Meeting will be held on Monday, March 6, at 8 P.M., when the name of Mr. Thomas Hastings of New York will be submitted for election as Royal Gold Medallist 1922, and an election of candidates for membership will take place.

There will also be a discussion on the question of Higher Buildings for London.

The following notes are from the minutes of the Council meeting held on February 20:—

Unification and Registration.—It was reported to the Council that at the meeting of the Unification and Registration Committee, held on February 7 at the Royal Institute, the following resolution was carried by thirty votes to one:—

> "That this meeting of the Unification and Registration Committee reaffirms its resolution of May 12, 1921, that the principle of Scheme A—namely, the bringing of all architects in the United Kingdom into membership of the R.I.B.A.—be adopted as the basis of unification."

and it was resolved that the resolution be approved by the Council of the R.I.B.A.

(As there has been widespread misunderstanding on the subject of the proposals for the unification and registration of the architectural profession which are now being considered by the Associates' Committee and the Unification and Registration Committee, the Council have given instructions that a brief explanatory statement shall be at once prepared and issued to members.)

The University of Manchester School of Architecture.—The five-years' courses of the School of Architecture of Manchester University have been recognised as exempting from the Final Examination on the usual conditions.

The R.I.B.A. Prizes and Studentships.—The Council have adopted the following recommendations of the Board of Architectural Education:—

1. That no work submitted shall have been prepared during the competitors' day-school hours.

2. That students shall receive no criticism or assistance from their school or atelier instructors in making their designs.

3. That a student successful in a travelling studentship competition shall be given personal advice by the jury of that competition before travelling and shall be recommended to wait until he has reached the age of twenty-three years before taking up his travelling studentship.

4. That a student successful in a travelling studentship competition shall be given two-thirds of the money prize before beginning his travels; the remaining one-third to be handed to him on the satisfactory completion of those travels.

5. That the student successful in the Pugin Travelling Studentship Competition be required to make a tour of six weeks' duration instead of eight weeks.

6. That the student successful in the Henry Jarvis Travelling Studentship Competition be permitted to spend his second year in some country other than Italy or Greece, if he so desires, subject to the approval of the Faculty of Architecture of the British School at Rome.

The Celebration of the 150th Anniversary of the Academie Royale de Belgique, May 24, 1922.—The following members have been appointed to represent the R.I.B.A. at this celebration: The President of the Royal Institute; Sir Reginald Blomfield, R.A., Past President; Mr. John W. Simpson, Past President; Sir John J. Burnet, A.R.A.

Special Election to the Fellowship.—Under the provisions of By-law 12 the following architects were elected as Fellows by the Council:—

The Right Hon. Earl Ferrers,
Mr. F. C. Eden.

Competition News.

The "Answers to Questions" relating to the Auckland War Memorial Competition have been received by the R.I.B.A. from New Zealand. Duplicated copies can be obtained by competitors on application to the Secretary, R.I.B.A The date for receiving drawings in this competition has been extended to June 30, 1922.

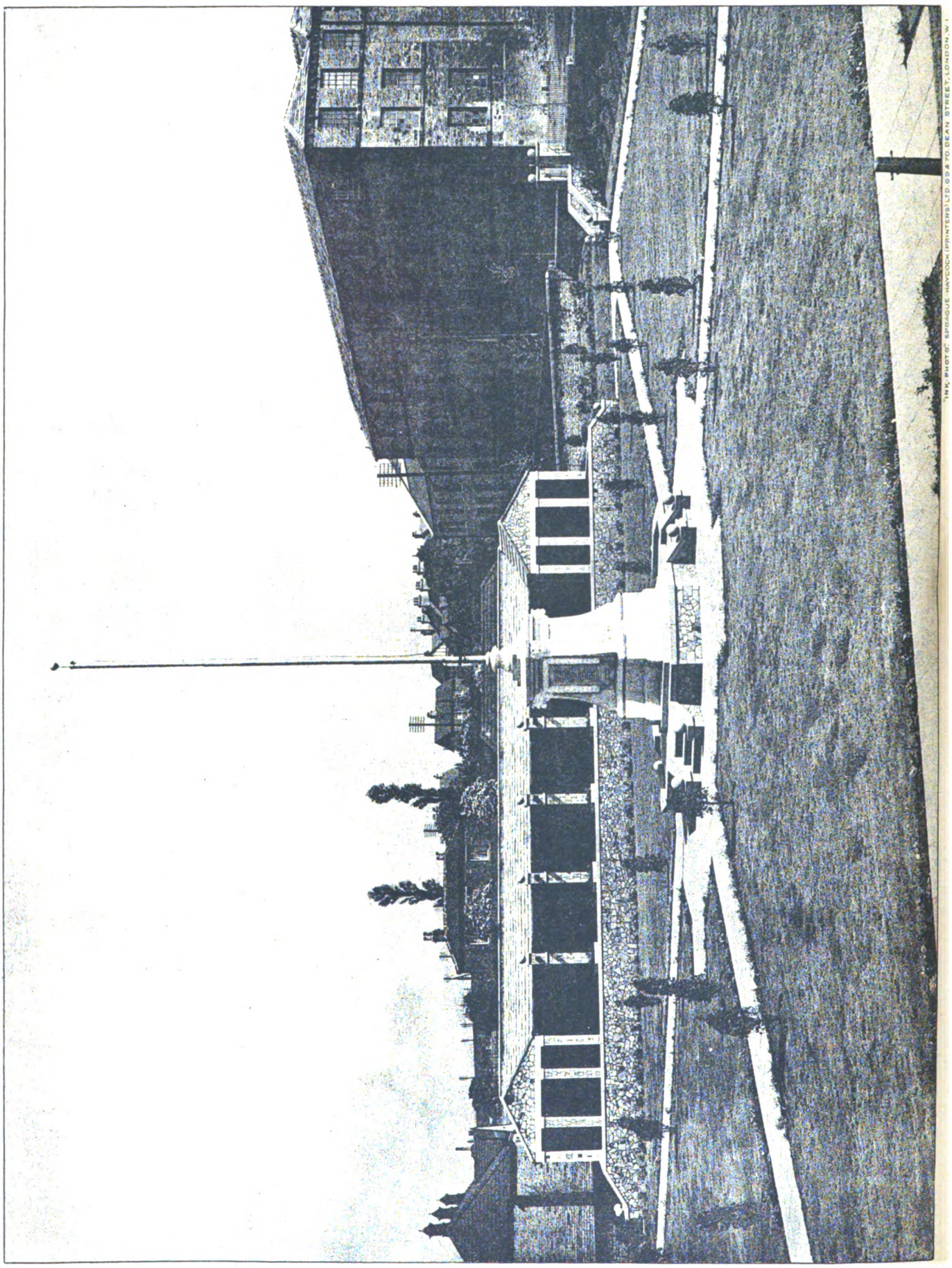
Mr. L. W. Barnard, F.R.I.B.A., has been invited by the Herefordshire County War Memorial Committee to prepare a design for a Queen Eleanor Cross. It was not found possible to raise money sufficient to carry out the original Cathedral Close scheme, not more than half the amount being secured, and so the Committee has decided to commence again *de novo*. It is proposed to erect the cross in St. Peter's Square.

Mr. A. E. Painter, Lic.R.I.B.A., Wolverhampton, has been instructed by the Staffordshire, Wolverhampton, and Dudley Joint Tuberculosis Committee to proceed with the demolition of the remnant of Prestwood House, Kinver (the mansion was recently destroyed by fire), to clear the site, and to prepare plans and estimates for the construction of a new sanatorium administrative block for submission to a future meeting. The loss of the building was covered by insurance.

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WAR MEMORIAL, BAILIFFE BRIDGE, YORKSHIRE.
WALSH & MADDOCK, Architects.

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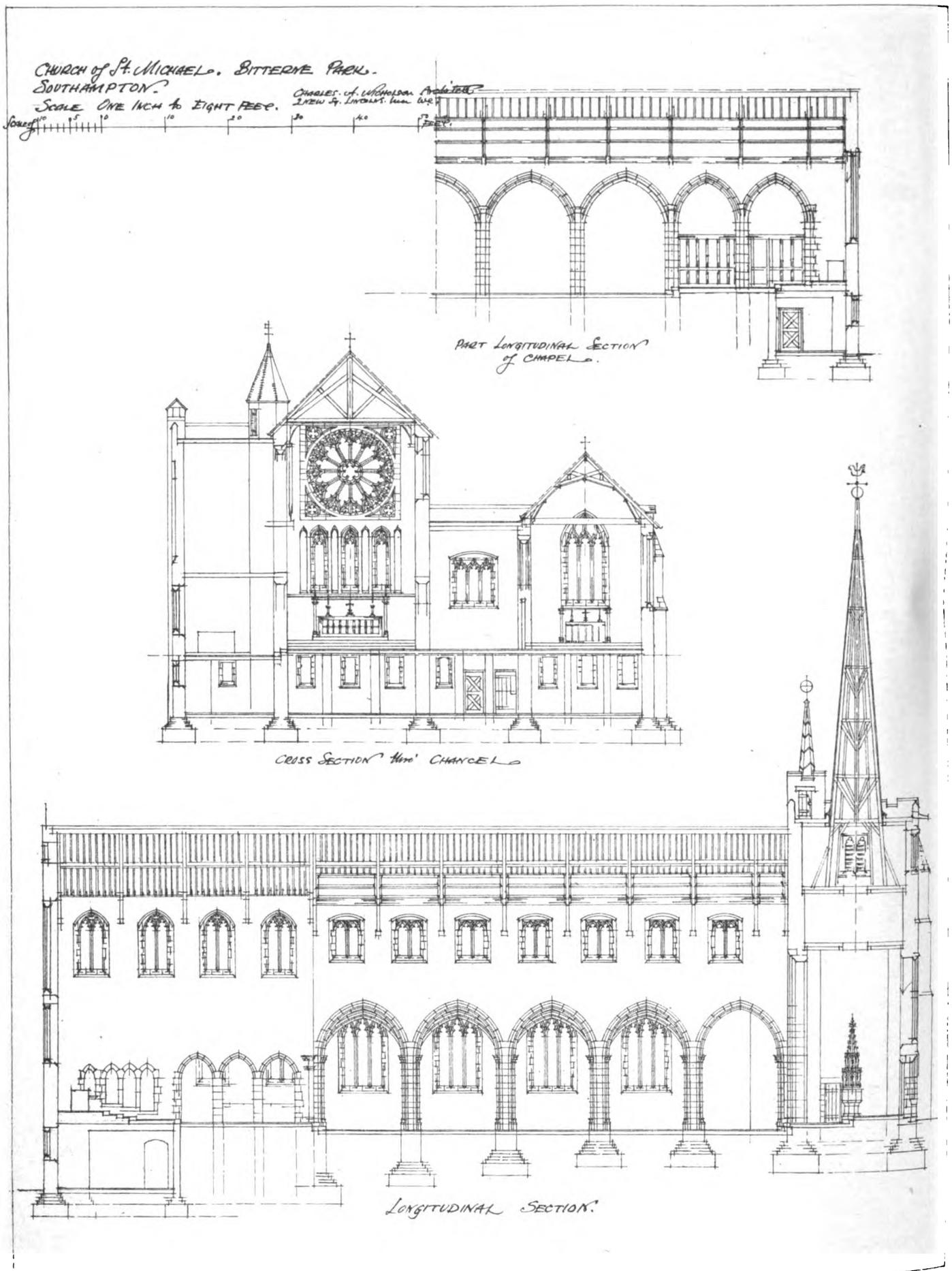


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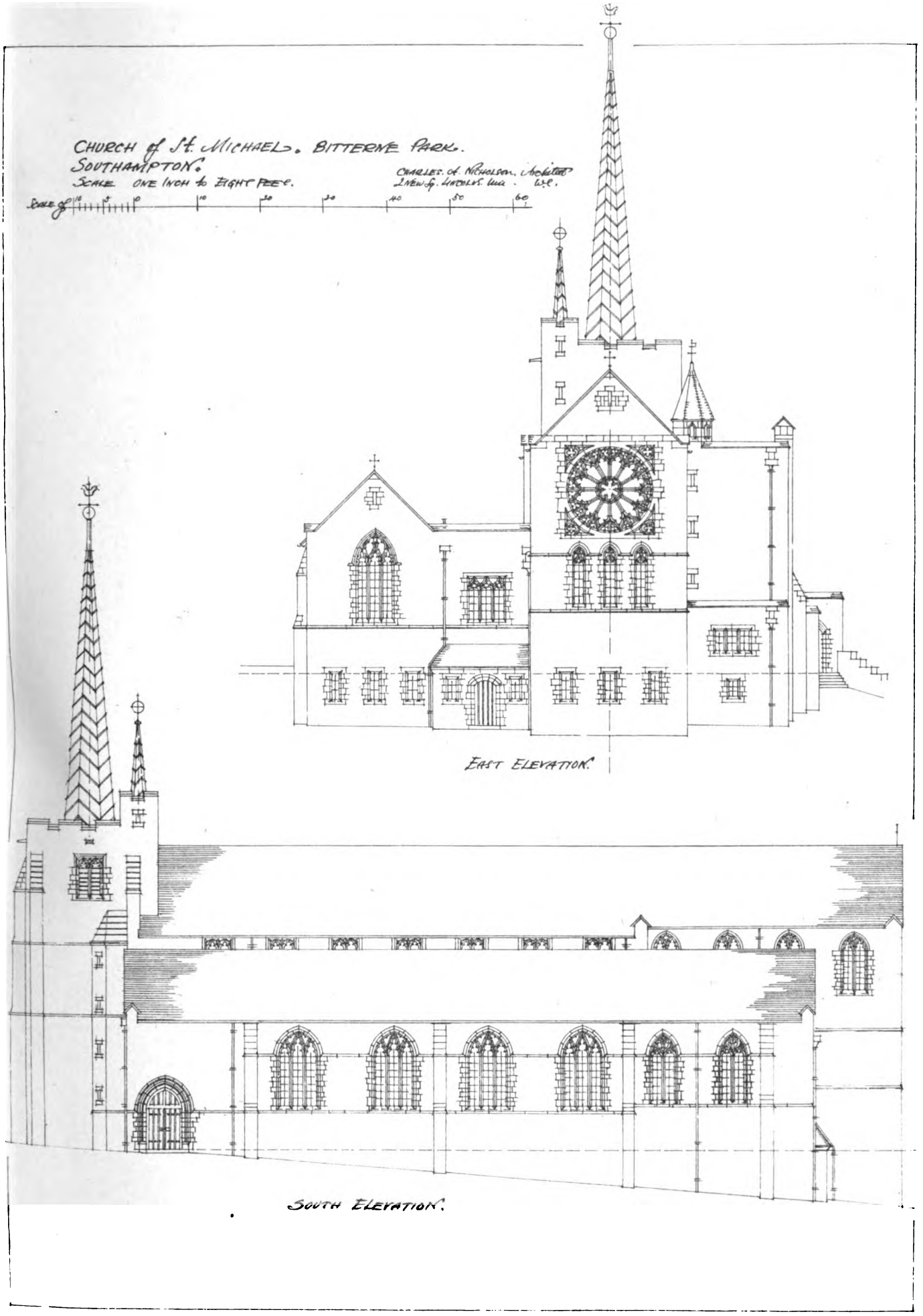


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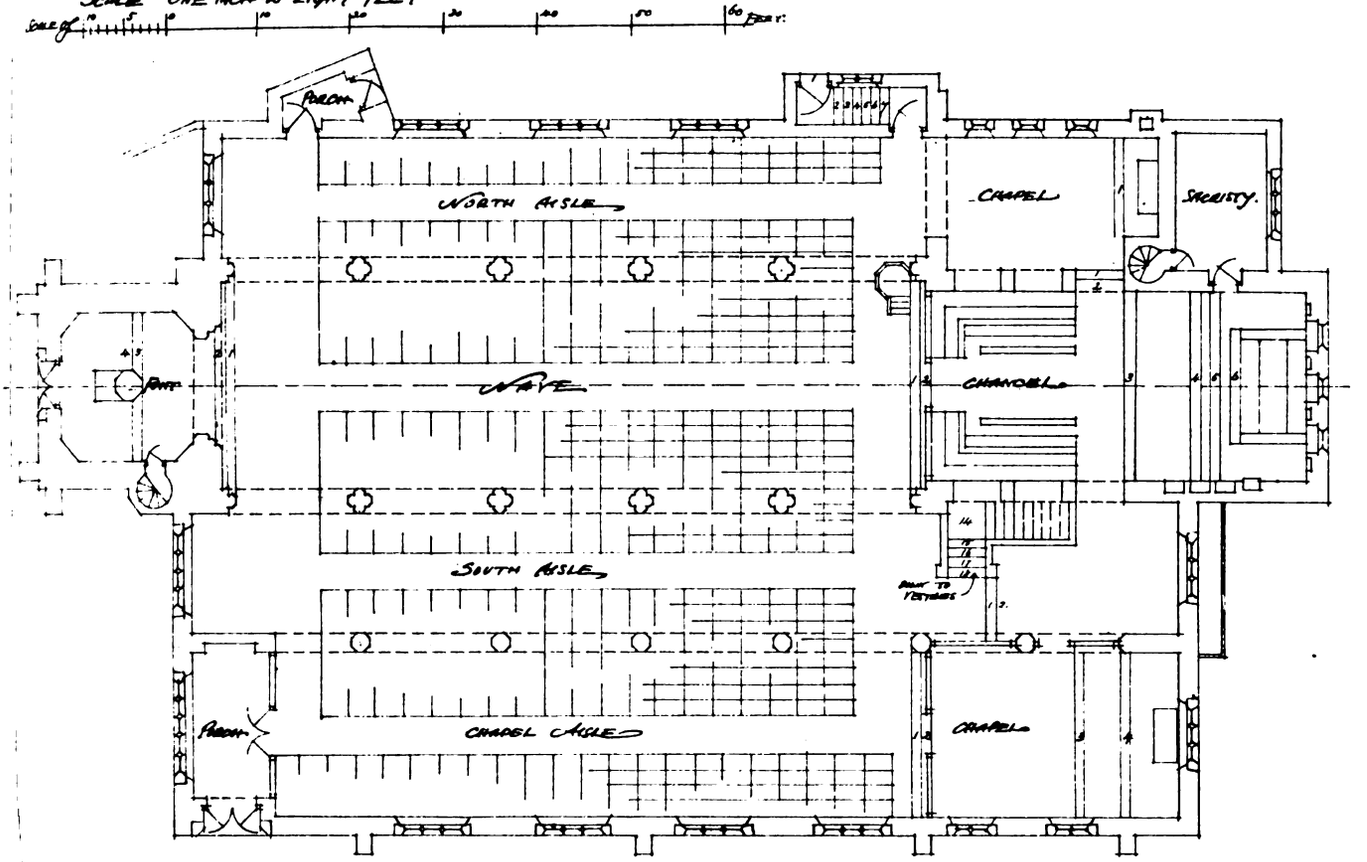
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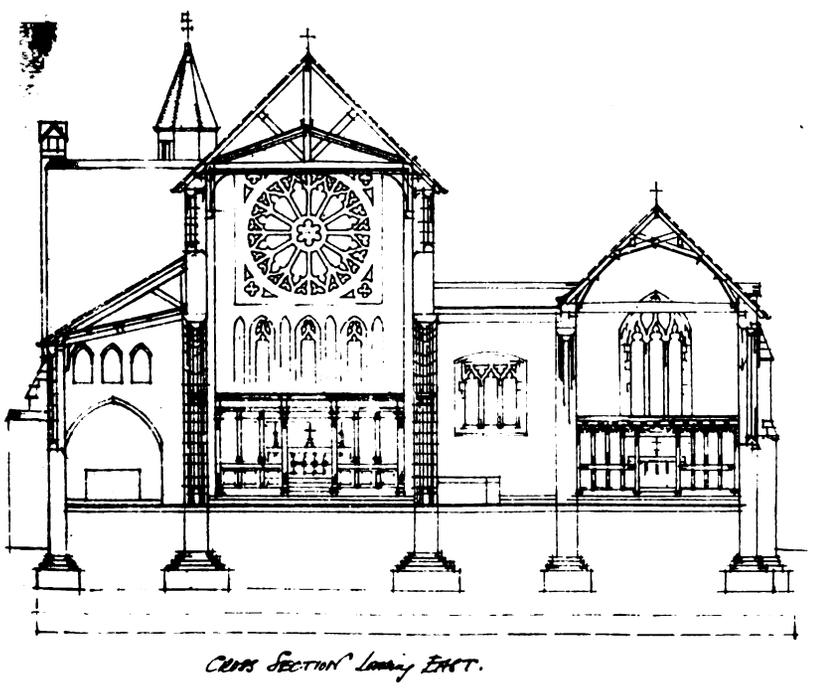
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CHARLES A. NICHOLSON. Architect. 2 NEW SQUARE. LINCOLN'S. INN. W.C.

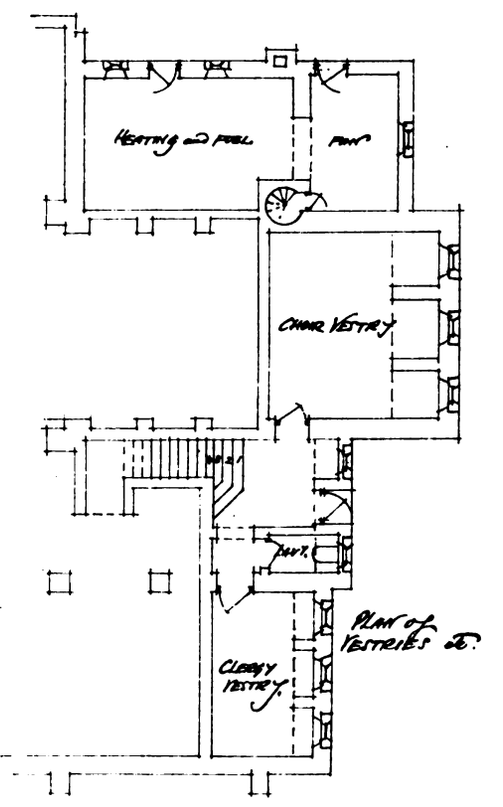
SCALE ONE INCH to EIGHT FEET



PLAN.



CROSS SECTION LOOKING EAST.



PLAN of VESTRIES &c.

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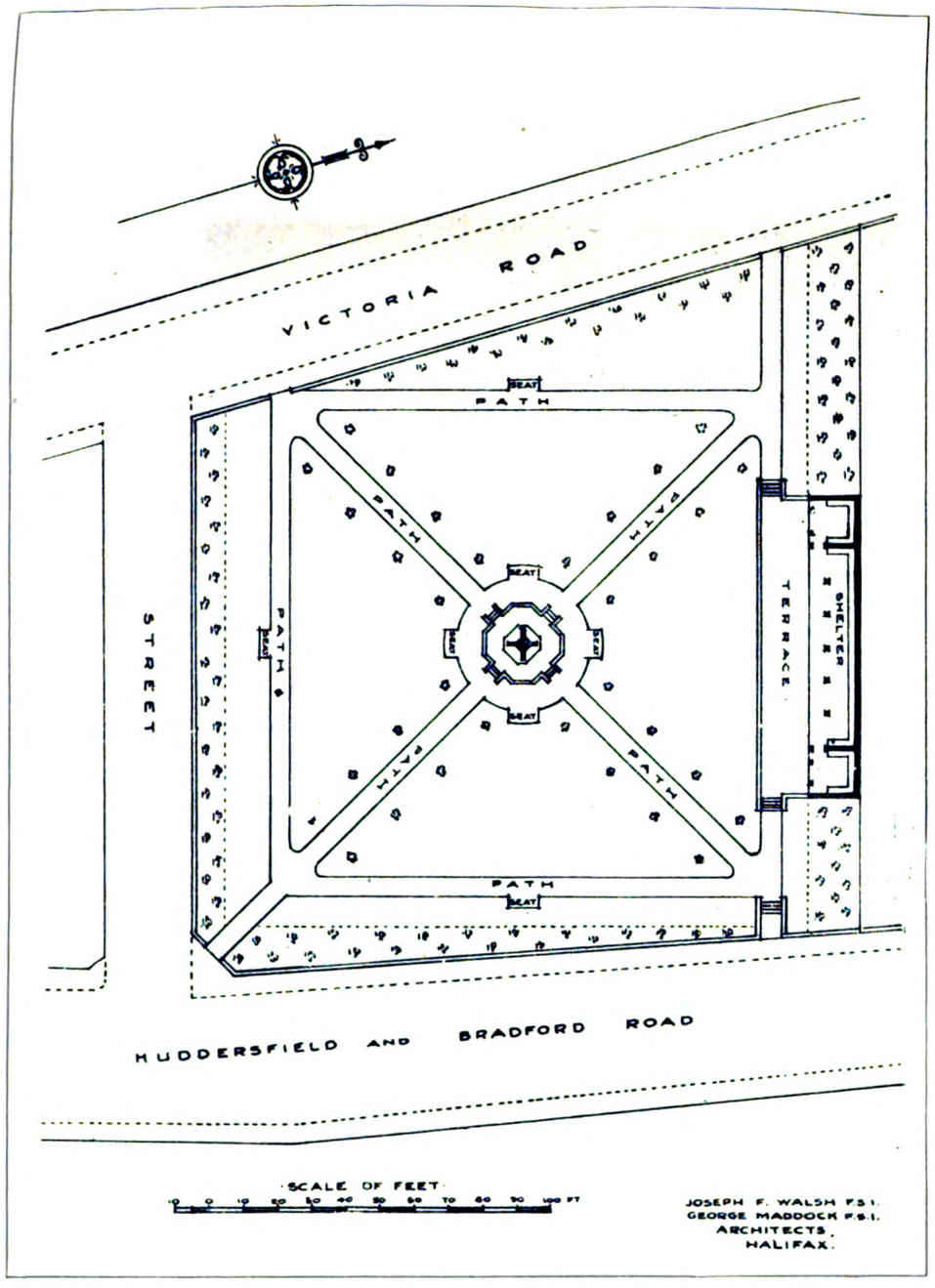
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Modern Methods in Building Construction.*—VI.

By Albert Lakeman, M.S.A., M.C.I.

Surplus Soil Transport.—The previous notes have been confined entirely to the different methods that are applicable to the removal of soil, and the operations involved in the transportation of the excavated material to the place of deposit have been disregarded, as it is considered that such transportation is a feature calling for special comment, apart from the question of the actual excavation. The operations involved in the handling of the soil after excavation are obviously of great importance, because it will be impossible to maintain a large output with the excavating equipment unless these operations provide facilities for disposal equal to such output, and thus real economy cannot be effected by the use of efficient digging appliances alone. The transport capacity required in any scheme will be a simple matter to determine, as it resolves itself into providing a service equal to the maximum output of the excavators, less any known quantity that is to be dumped at the excavating point for subsequent refill or levelling. As an example, if a steam shovel is to be employed for the removal of the soil, and the maximum output from this shovel is 600 yards cube per day, the whole of which is to be transferred to a tip, then the transport arranged for must be equal to at least 600 yards cube per day also, or the steam shovel will be continuously forced to cease operations and stand with the bucket full of soil, with no receptacle at hand to receive it. The writer was interested in one large scheme where many thousands of yards cube of cinder-filling were required, and several estimates were obtained from contractors for the delivery of these to the site.

A large dump of cinders existed in the locality, and the material was available free of cost, but the loading up, transport, and delivery to the required position on the site had to be estimated for, and it was stated that the daily delivery should be at least equal to 500 yards cube. One contractor put in a figure which appeared exceedingly low, and the order was placed, and when asked what means of transport he would employ he stated that he would supply sufficient lorries and wagons to keep the loading equipment fully engaged.

The loading equipment consisted of a steam shovel, which was driven to the cinder dump, and this had a ¾-yd. capacity bucket and an average output of something over 600 yards cube per day. The transport was arranged with end-tipping motor-lorries and horse-drawn bottom-dump wagons, and a commencement was made with twelve vehicles, which passed the shovel, were loaded up, driven to the site, discharged, and returned, following always a route which permitted of a continuous flow, and also providing facilities for the fast vehicles to overtake the slow without obstructing the traffic in the reverse direction. The number of the vehicles was daily increased until no less than forty were employed, and this transport was able to deal with 640 cubic yards per day, which represented a fair day's work for the shovel. This scheme worked admirably, and the whole of the organisation was continually employed, as the flow of the vehicles past the shovel loader kept the latter engaged the whole time, and at the same time the drivers of the transport had no excuses for delay.

The supervision and checking was done by one man, who was placed at an elevated point where the steam shovel was in view, and where every vehicle had to pass, the latter being numbered in a distinctive manner to enable an easy check to be made of the number of journeys accomplished by each driver. This example is given to illustrate the successful organisation of transport which enabled the contractor to make a good profit, although the price quoted for the work was comparatively low. It is interesting to note that this order called for the delivery of some of the cinders into wagons running on a narrow-gauge construction track on the site of the new buildings if required by the main contractor, and the sub-contractor who was supplying the cinders obviated any rehandling of the material by discharging direct into these wagons in an ingenious manner. He erected a small wooden bridge over the track, with sloping ways on either side at an inclination which permitted the horse-drawn wagons to be driven up on one side to the top, where the bottom of the wagon was opened to discharge the contents through an opening in the deck of the bridge and into the truck placed below. A train of trucks on the rail was marshalled near the bridge, and each truck was drawn under the opening until the train was loaded. The horse-drawn wagons passed up one slope, discharged their contents at the top, and descended on the other side, thus permitting a continuous flow and quick loading of the train.

The bridge and slopes were formed at a very small cost by the use of medium-size timbers roughly framed together, and the initial outlay was soon repaid by the saving in the cost of dumping at the low level and picking up again to load into the railway trucks. The opening in the centre of the deck did not constitute any danger, as it was protected by raised fenders, and all the wagons were driven by two horses, one of which passed on either side of the opening. It was quite evident that the foresight and organisation of the contractor in arranging his transport was responsible for the success of the undertaking, and it must be realised that he not only made a fair profit, but at the same time he gave satisfaction by complying absolutely with the terms of the order, and thus he gained the goodwill of the main contractor and the clients, and was able to secure contracts for other sections of the work.

With regard to the best method of transporting surplus soil it is quite impossible to lay down any definite scheme which will be the ideal one for all conditions as the methods that will be applicable and suitable for one particular job may be far from economical in the case of another.

The whole of the circumstances in connection with each excavation job must be considered carefully before the work is commenced and the site conditions must be thoroughly studied. The chief points to be considered are (*a*) the accessibility of the tip, (*b*) the nature of the tip, (*c*) the distance to the tip, (*d*) the nature of the excavation, (*e*) the type of excavating equipment being installed, and (*f*) the relation of the excavation, tip, and transporting medium to the general scheme. Some explanation can be given as to the influence of these points in order to prevent their importance being overlooked as they all have considerable bearing on the subject. The accessibility of the tip will govern to a large extent the type of transport used because the use of heavy steam or motor lorries will not be an economical proposition if no roads are available, and suitable ones can only be constructed at a heavy initial cost and a large amount of maintenance work is involved after construction, but if the tip is easily accessible with good facilities for transport by large lorries then the adoption of this type is likely to prove suitable. Again, if the soil has to be taken off the site of the operations and along a public highway because no tip is available, lorries are likely to prove the only economical solution. The nature of the tip will not be of so much importance as the previous condition, but it may have some bearing because a shallow tip covering a comparatively large area will demand a means of transport which is flexible at the tipping point, and again it may be a tip where special difficulities are encountered when attempting to manœuvre large vehicles.

The third point, which is the distance to be transported, will naturally have considerable influence on the

* I. Introduction, Steam Shovels, Jan. 13; II. Steam Shovels (*cont.*), Trench Diggers, Jan. 20; III. Grab Buckets, Scrapers, Jan. 27; IV. Drag-line Excavators, Feb. 3; V. Derricks and Cranes, Radial Loader, Feb. 17.

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arrangements to be made because speed is of primary consideration where the distance is great, as a slow method of transport will necessitate an excessive number of trucks or wagons owing to the large quantity that will be at all times on the road to and from the place of deposit.

The type of excavating equipment will have some influence on the transport employed; in the first instance on account of the possible output that has to be handled, and secondly because it may be mobile equipment which can operate to load the transporting medium over a large area or it may be limited in action and demand the approach of the transport to the actual point of excavation and the nature of the excavation will affect the operations in a similar way, as this may be such that large quantities of soil will be removed at one point or it may be spread over a large area and necessitate a continual and marked change in the point of loading which will demand considerable flexibility of transport if economy is to result.

The last item which was given as the relation of the excavation, tip, and transport to the general scheme is a condition that clearly cannot be overlooked if the operations are to prove successful. As an illustration, the transport arrangements must not be planned in such a manner that they will interfere with the sequence of the trades following behind the excavation, while the position of the excavation and tip in relation to the general scheme may be such that it will prove economical to instal at the outset a complete system of industrial tracks which will cope with the transport of the surplus soil in the first instance and subsequently be used for the transport of concreting materials, mixed concrete, bricks, steel, and all other materials required for the construction. Again, the relation of these three factors to the whole scheme may necessitate the application of different methods at different times, or a combination of various forms of transport to overcome difficulties that will arise through the use of one system only throughout. If the surplus soil is to be deposited on the building site it may be necessary to excavate certain work, in the nature of foundations or drainage, before some part of the tip can be utilised to take this soil, and again it may be necessary to fill in at some points to bring the ground up to a definite level and get the filling consolidated before other work can be proceeded with, and these conditions will necessitate a changing over of the transport at the tip to give the desired results. In the case of the use of scrapers for excavation, the transport will be provided by the excavating equipment itself, and no special provision has to be made. The factors which have to be taken into consideration are numerous, and of such a nature that each particular scheme will need to be studied in all its aspects before the transport is decided, and general principles only can be laid down as a guidance to the contractor.

The types of transport that can be adopted can be classified as follows: (*a*) Small receptacles, such as wheelbarrows or buggies, dependent on hand-labour; (*b*) horse-drawn vehicles; (*c*) steam-driven wagons; (*d*) petrol-driven wagons; (*e*) narrow-gauge track with wagons; (*f*) trucks operated on standard-gauge track; and (*g*) electrically driven trucks or vehicles. In dealing with the merits and demerits of any one of these types, it will be essential to consider suitability, initial outlay, comparative operating cost, including maintenance and all charges, and speed.

Hand Labour.—In the case of ordinary hand labour operating small receptacles the merits will be limited to work of a small character, as the possible output will be insufficient to cope with any large excavating equipment unless an army of workers are engaged which will be cut of all proportion to the practical needs of the scheme. Under some circumstances it will satisfy the conditions of suitability and initial outlay, but when taking the questions of comparative cost and speed into account it will be found to be quite unsatisfactory. Its application must be limited to excavation schemes where hand labour is employed for the soil removal and when the tip is situated close to the point of excavation, and only under these conditions can its adoption be justified at any time. It is also dependent on the human element entirely, which means an uncertain output and a falling off in speed, with a consequent increase in cost, owing to fatigue when the conditions are such as to make the work arduous. The cost that can be taken as a basis for the method is by no means easy to arrive at, more especially if the cost is to be used for comparison with other methods, as the operating radius will be so small as compared with many other transport methods that a common basis is difficult to determine. The unit cost of a steam-driven waggon can be taken as the price per ton mile, which means the total cost of transporting one ton of soil over a distance of one mile, but this unit is a large one if applied to hand labour, because it implies a wide range of operation that would prevent the economical use of the latter method. A similar difficulty will arise, however, if a smaller unit is taken, such as the cost to transport one ton a distance of, say, 50 ft., because this operating range is so small that the application of steam wagons could not be seriously considered under these circumstances. For the purposes of comparison, therefore, it will be advisable to adopt the unit cost as that per ton mile, because it is a convenient unit for the more important methods, and it must be understood that in the case of hand labour it is a comparative figure only arrived at by multiplying the cost of transporting over a reasonable distance by the necessary factor to raise such distance to one mile. In arriving at the cost for hand labour it will be found that considerable difference of opinion exists amongst estimators as to the fair allowance to be made, and records of actual costs are seldom analysed in a manner which enables an accurate record to be obtained of the transport of the surplus soil only, because the removal of the soil, loading up, wheeling, levelling (if any), and return will be given in the one figure, and separation is difficult. In arriving at a basis figure the writer has worked on average conditions and a reasonable output, and the net unit cost per ton mile can be taken at approximately 7s. 6d. as a basis for comparison with other methods. This cost can be taken as including interest on initial outlay, depreciation, and maintenance, as these will be almost negligible quantities. As a figure for comparison when considering output and speed it can be assumed that one man will do the equivalent to 10 ton miles per week of forty-four hours, and this will enable the number of men required to do the work of one wagon to be arrived at to show the saving in labour when using modern methods. The unit cost is high and the output is low with this system, and this is readily understood when it is realised that the quantity handled at one time is so small that many journeys are required to transport one ton.

(To be continued.)

Forthcoming Events.

Saturday, February 25.—Architectural Association. Visit to St. Swithin's, Hither Green, S.E. 13 (the late Ernest Newton, R.A., architect). 3 p.m.

Monday, February 27.—Concrete Institute. Joint Conference at Denison House, Vauxhall Bridge Road, S.W., to consider the preservation of London Bridge arch. 5.30 p.m.

Wednesday, March 1.—Royal Archæological Institute. Meeting at the Society of Antiquaries, Burlington House, W. Paper by Mr. W. A. Forsyth, F.R.I.B.A., and Mr. P. M. Johnston, F.S.A., F.R.I.B.A., entitled "Ickenham Church, Middlesex: Recent Changes." 4.30 p.m.

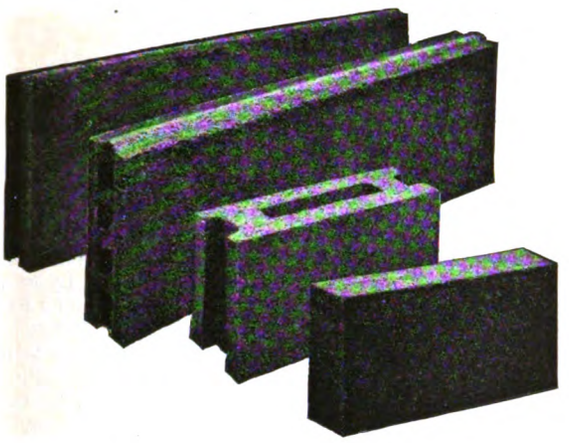
— Edinburgh Architectural Association. Meeting at the College of Art, Lauriston Place. Paper by Mr. W. S. Menzies, clerk of works, H.M. Office of Works, entitled "Practical Masonry." 7.30 p.m.

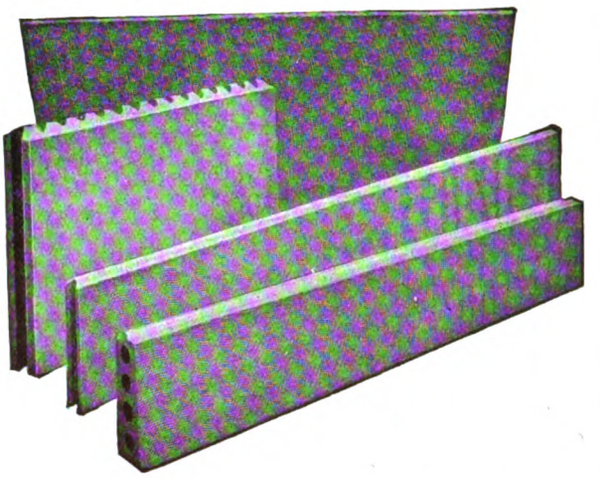
Thursday, March 2.—Civic Education League. Meeting at Leplay House, 65 Belgrave Road, S.W. Paper by Miss Margaret Tatton, entitled "Art in Relation to Education." 8.15 p.m.

Friday, March 3.—Town Planning Institute. Meeting at 92 Victoria Street, S.W. 1. Papers by Mr. Barry Parker, F.R.I.B.A., entitled "Zoning to Secure Amenities," and by Mr. W. H. Gaunt, O.B.E., entitled "Zoning as applied to Industry and Public Services." 6 p.m.

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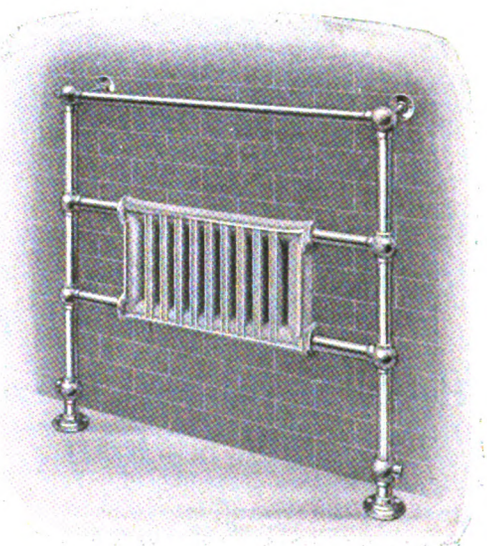
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The Architects' and Surveyors' Approved Society.

At a general meeting of members of the above Society held recently, the Committee of Management's proposed new scale of benefit, made possible by the very satisfactory financial position revealed by the Government valuation, were approved, so that in future the Society, membership of which is exclusive to those employed in architects' and surveyors' offices whose salaries are less than £250 per annum, will be entitled to the following:—

	£	s.	d.
Maternity benefit	2	10	0
Sickness benefit (men)	0	17	6
Sickness benefit (women)	0	14	6
Disablement benefit	0	8	9

Dental treatment.
Hospital treatment.
Medical appliances.
Optical treatment.
Convalescent treatment.

The Society's invested funds amount to upwards of £8,000.

According to a statement issued in December last the total number of persons who have joined the Society since its formation is 2,525, and of these 746 have ceased to be members, mainly owing to their having passed out of the scope of the National Insurance Act.

The following amounts have been paid in benefits from 1912-1920:—

	£	s.	d.
Sickness benefit	1,350	13	10
Disablement benefit	314	12	6
Maternity benefit...	373	10	0
Subscription to hospital and specialist's fees	6	16	3

It is obvious that it is to the advantage of all employees of architects and surveyors coming within the scope of the Health Insurance Act to belong to a Society formed solely for their benefit, especially as it is now offering benefits on a much higher scale than most other Approved Societies.

The new Committee of Management is as follows:—

Chairman, Lewis Solomon, F.R.I.B.A.,
Treasurer, H. D. Searles-Wood, F.R.I.B.A.,
George Corderoy, F.S.I., W. Fagg, P. W. Farmer, Alexander Goddard, O.B.E., W. H. Hamlyn, A.R.I.B.A. G. N. Hannam, P.A.S.I., John B. Hector, M.S.A., R. B. Mann, F.S.I., C. McArthur Butler, E. C. P. Monson, F.R.I.B.A., E. J. Sadgrove, F.R.I.B.A.

Trustees, Wm. Edgar Horne, M.P., Daniel Watney, F.S.I., E. J. Sadgrove, F.R.I.B.A.

Secretary, F. R. Yerbury.
Assistant Secretary, Miss S. Double, F.F.I.

Height of Buildings in London.

The London County Council has decided to scrap the restriction on the height of buildings in London, which has been in existence since February 1910. Under their old procedure the Council, in considering applications for consent to additional cubical extent, laid it down that the height of a building must not be more than 60 feet, measured from the pavement level to the *upper surface of the floor* of the topmost storey. The height which in future will be sanctioned is 80 feet, measured from the pavement level to the *underside of the ceiling* of the topmost storey. According to the Building Acts Committee this means practically the addition of another storey.

The relaxation now sanctioned by the Council is traceable to representations on the subject made by the Royal Institute of British Architects. It is, however, important to remember that the Council is really conceding nothing more than was originally permitted under Section 47 of the London Building Act, 1894. The old limitation to 60 feet was a restriction imposed by the Council in a decision reached more or less arbitrarily on February 22, 1910. The consideration at that time was the difficulty in dealing promptly with fires in the upper floors of high buildings.

The "Architect" Fifty Years Ago.

FEBRUARY 24, 1872.

COMING WORKS IN FRANCE.

Attention is now much engrossed with the subject of railways and canals—certainly one of the most important that can possibly be taken up. The means of internal communication have never been equal to the trade and commerce of the country, and now the improvement of the former has become of the most pressing importance.

Amongst the most important schemes is the execution of a branch railway from Amiens, or some point on the Northern Line, to Mâcon or Dijon on the Lyons and Mediterranean line, so as to form an uninterrupted line to Marseilles; the competition of Brindisi and Trieste, and the inattention of the French railway companies to their own interests and the convenience of those travelling to India and the Far East, have placed the traffic to the Mediterranean across France in the greatest danger. The facts are now recognised by everyone, and there is little doubt that the above project will take a practical form.

A subterranean railway in Paris, a circular line round the two home departments of the Seine and the Seine-et-Oise, and a system of tramways for the great boulevards and avenues of the city, are amongst the serious plans now under consideration.

The completion of the South-Eastern system of railways is another and very important work that is urgently insisted on, and this is now under the consideration of the authorities; the principal feature being a direct line from Vienne, by the way of Digne and Gap to Marseilles.

The manufacturing interests are equally urgent about the improvement and extension of the canals, which should supply them with cheaper means of transit than they at present possess for coals and other heavy goods. Before the war the important canal of the Rhone and the Rhine was in hand, but the loss of Alsace has, of course, put an end to that undertaking for the present. M. de Franqueville, the Director-General of Ponts et Chaussées, is now engaged on the completion of a plan which includes the improvement of the bed of the Rhone between Lyons, Arles, and Saint Louis, a work which has been talked of for years, and is much required; the plan also embraces the dredging of the whole of the canals of the country to an uniform depth. It is further proposed to suppress all navigation dues on rivers as well as canals. Plans like these promise well for the future of France, and there seems little doubt that some of them at any rate will be carried out without delay.

Messrs. C. Isler & Co., Ltd., of Bear Lane, Southwark Street, S.E., and also at Birmingham, Leeds, and Liverpool, have issued a hanging wall-calendar, which might well find a place in every school as illustrative of an artesian well. Perhaps the most instructive of the nine pictures are the two sectional drawings of the central London area, which show how the bed of chalk 600-700 feet thick extending beneath the entire area at an approximate depth of 200 feet acts as a great natural reservoir. Messrs. Isler, who have carried out water supply installations for a very large number of prominent buildings in London, introduce a diagrammatic rendering of their artesian well at the Bank of England, which has a bore of 450 feet, and is of the bucket-pump variety. There is also shown a method of raising the water by compressed air forcing the water down one pipe and up the other—a system of which this firm are the pioneers. The other illustrations show a few of their artesian well contracts at home and abroad. Messrs. Isler have an improved system for raising large or small quantities of water from any depth by any kind of pump worked by any power.

Holywell Urban Council have received a letter from the Ministry of Health stating that if the detailed plans of the proposed scheme of water supply for the town was submitted promptly, and the scheme proved one which the Ministry could recommend to the Unemployment Grants Committee, that Committee would be prepared to make a grant. The Council have decided to engage Messrs. Williams and Clarke, civil engineers, of Chester, to prepare the necessary particulars to be sent to the Ministry.

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AUSTRALIA HOUSE.
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Architects.

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The "Kingsway" Automatic Combined Switch and Plug.

For the control of radiators, motors, banks of lamps, and other appliances which necessitate the use of a temporary connection to the mains a combined switch and plug is undoubtedly the most satisfactory apparatus. Such a device is greatly favoured by supply authorities and consulting engineers, and its use is often insisted upon by them.

The "Kingsway" automatic combined interlocked switch and plug (Patent No. 136006), recently introduced by the General Electric Co., Ltd., is therefore of special interest. The illustration (Fig. 1) shows this accessory to be of robust construction.

It is capable of dealing with currents up to 15 amps. without the slightest risk to the operator. The mechanism,

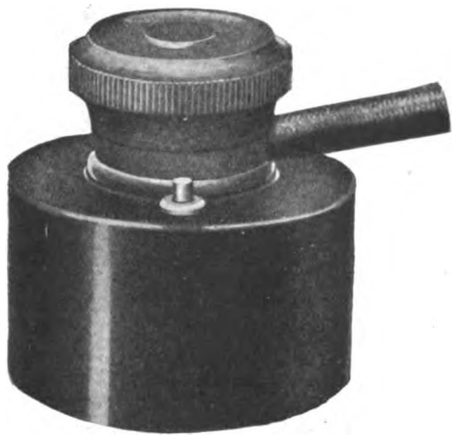


Fig. 1

which is of ingenious and strong design, consists of a rapid rotary action double-pole switch interlocked with a substantial plug.

On the plug being inserted and turned in a clockwise direction the circuit is made and the switch is automatically locked in the "On" position. The switching off may be carried out either by withdrawing the plug (when the switch automatically breaks the circuit before the plug pins leave the socket tubes) or by pressing the small plunger on the front of the socket cover, when the switch flies rapidly

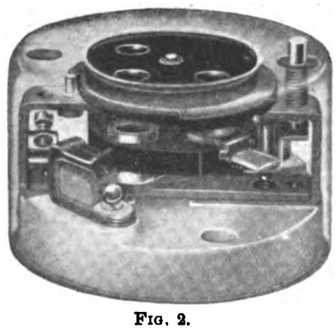


Fig. 2.

off. The latter method allows the plug to be left in the socket in the "Off" position—often a great convenience.

An "*x*-ray" view of the plug is shown in Fig. 2, and it will be seen that the mechanism is extremely compact and that the contacts are designed for easy wiring.

Earthing connections on both plug and socket and a third pin for earthing are provided, this latter ensuring correct polarity, as the plug can only be inserted in one particular way. Two patterns are supplied, one for surface fixing and one for sinking flush in the wall or skirting board.

Full particulars can be obtained on application at Magnet House or at any of the provincial branches of the General Electric Co.

At the annual meeting of the Sheffield, Rotherham, and District Building Trades Employers' Association, held in the Builders' Exchange, last week, Mr. James Kelly, of Messrs. Wellerman Bros., Ltd., Sheffield, was elected President for the ensuing year. The following officers were also elected: Senior vice-president, Mr. W. M. Beeden; junior vice-president, Mr. G. E. Marlow; hon. treasurer, Mr. W. H. Forsdike; secretary, Mr. Tom Smith.

General.

The Leeds Master Painters' Association have decided that the day-work charges to the public should be reduced by 1d. an hour, in consequence of the reduction of ½d. an hour in painters' wages.

Sir Banister Fletcher, F.R.I.B.A., will on Wednesday next at 6 o'clock deliver an illustrated lecture on "The Tower of London," at the Central School of Arts and Crafts, Southampton Row, W.C.

The Filey Urban District Council have approved a draft scheme for a concert hall and accessory buildings to be erected in the North Gardens recently acquired by the town. The Surveyor has been instructed to prepare an approximate estimate.

At a meeting of the Buildings Committee of the Risca Council, the surveyor stated that plans for fifty new houses had been submitted to the Ministry of Health, and with slight modifications had been accepted. The question of tenders was referred to another meeting.

Messrs. John Quilter & Sons, of 3 St. James' Street, S.W., are the architects for the alterations now in progress at the Theatre Royal, Manchester, preparatory to its re-opening as a cinema. The total cost of converting and equipping the theatre, inclusive of architects' fees, will be approximately £85,000.

The trustees of Sir John Soane's Fund, 13 Lincoln's Inn Fields, W.C.2, will meet at the Museum on Wednesday, March 15, to distribute the dividends which have accrued since January from the sum of £5,000 among distressed architects, their widows, and children in distress. Forms of application may be had at the Museum, and must be filled up and delivered there on or before March 2.

Mr. J. Leighton Fouracre, A.R.I.B.A., recently delivered a lecture on eighteenth-century furniture to the Plymouth branch of the Devon and Exeter Architectural Society at the Athenæum, Plymouth. Mr. Anstis G. Bewes, A.R.I.B.A., who presided, referred to the loss to the Society by the death of Mr. Basil Stallybrass, a vote of sympathy being passed with the bereaved relatives.

The figure of St. Michael for war memorial reredos at St. Matthew's, Southsea, has had to be recarved. When it was completed Sir Charles Nicholson, the architect, found that Signor Tosi had perfectly reproduced the face of Mr. Asquith! "Even now, after re-carving," writes the vicar, the Rev. Bruce Cornford, in the "Parish Magazine," "there can be seen some facial resemblance to this venerable windbag."

The Concrete Institute has called together a joint conference of all the professional societies, city companies, and others interested in the preservation of the archway recently discovered under London Bridge. The first meeting of which will be held at the offices of the Institute (Denison House, Vauxhall Bridge Road, S.W.) on Monday, February 27, at 5.30 p.m. It is believed that there are various funds which might be utilised for the purpose in hand, which all Londoners must agree is deserving of every support.

Major W. I. Travers, architect and deputy-director of the Birmingham Corporation Housing Department, recently asked the Housing Committee, in view of the breakdown of his health, to consider his resignation. The matter was accordingly considered by the Housing Committee. In accepting it the committee "recorded their appreciation of the steadfast way in which Mr. Travers had insisted on a proper standard of work in all building done for the Birmingham Housing Committee." They wished him a speedy recovery. Major Travers came to Birmingham on his demobilisation from the Army in January 1920, to take up the appointment he now relinquishes. The salary at which he was appointed was £800 per annum.

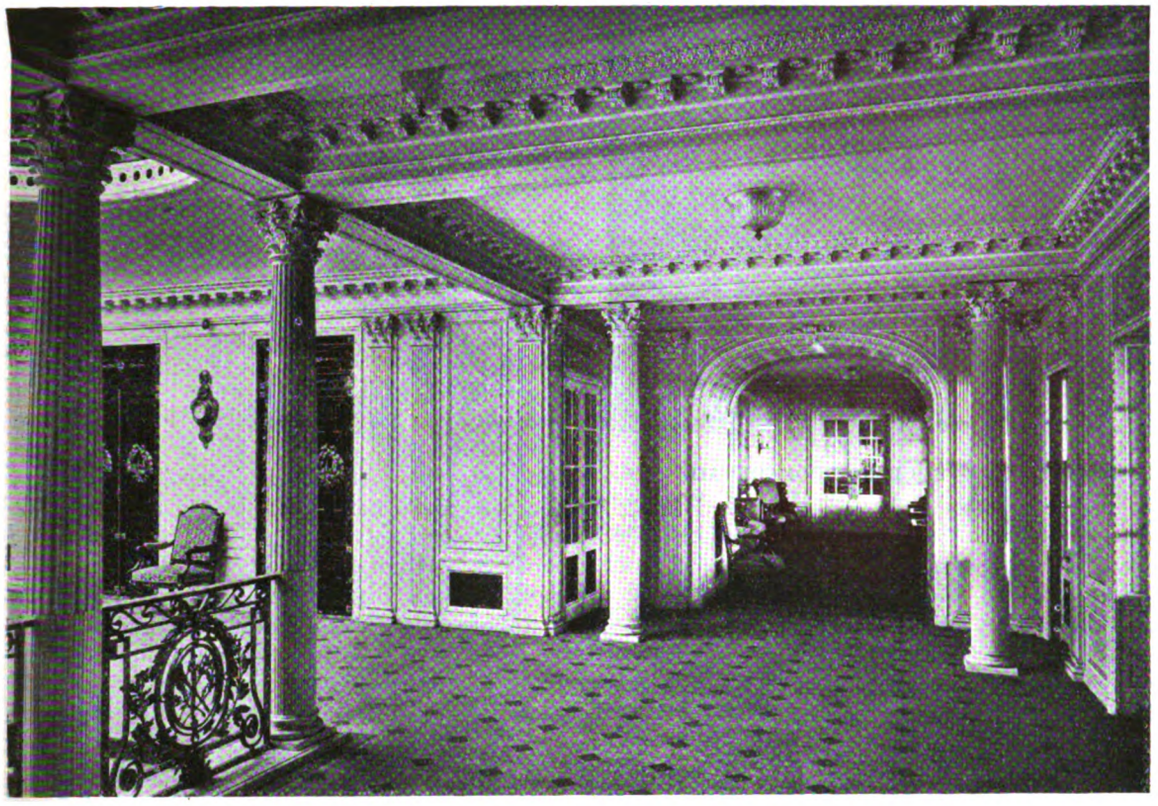
An Exhibition of Architects' Working Drawings was opened on the 22nd inst. in the Galleries of the Royal Institute of British Architects, 9 Conduit Street, W. 1. The Exhibition is intended primarily for students of architecture, to whom it should prove of the greatest interest and assistance; they will be able to examine the kind of drawing which a practising architect hands to a contractor, and will thus be afforded a unique opportunity of gaining an insight into the methods adopted in a modern architect's office. Sir John Burnet, A.R.A., has lent the drawings of the "British Museum Extension," and Mr. A. J. Davis and Mr. Ralph Knott drawings of the "Morning Post Building" and the "London County Hall" respectively. The Exhibition will be open until March 18, between the hours of 10 a.m. and 5 p.m. daily, 10 a.m. and 1 p.m. on Saturdays. Admission is free.

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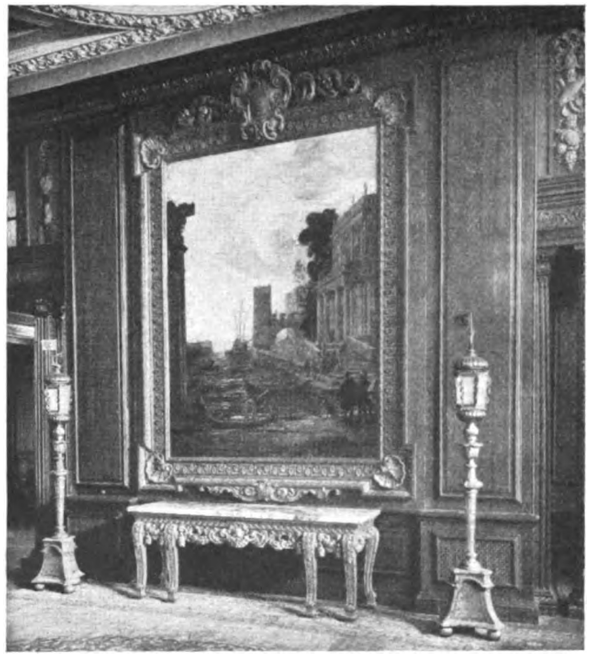
S.S. "AQUITANIA"—MAIN STAIR HALL.

Architecture as Applied to Ships.

(*See Inset Illustrations and p.* 158.)

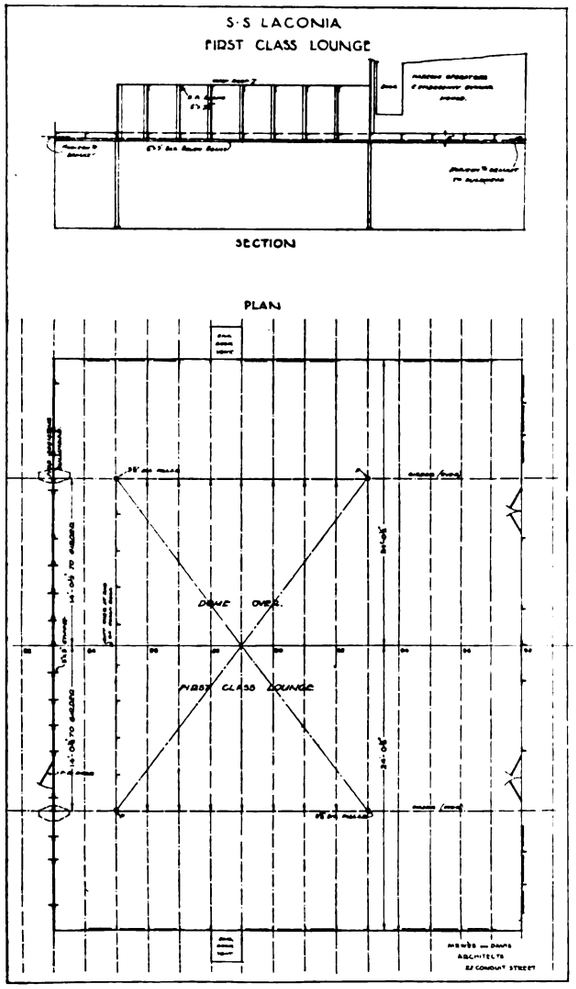
MR. DAVIS avoided any ambiguity by entitling his paper "The Internal Decoration of Ocean Liners," since naval architecture covers the whole science of shipbuilding, and must of necessity only leave the decorative treatment of the spaces allotted to passengers to the architectural designer. The great extent of this limited field was abundantly proved by Mr. Davis's illustrations and the facts which he stated. Formerly ships' architecture was largely the product of the ship's carpenter and joiner, though even in the vessels of two or three centuries ago the treatment of the poop of the ship on which most decoration was lavished closely resembled contemporary work on land, as is clearly shown in the drawings of warships of the Stuart period, several of which we illustrate. Here we meet the same decorative treatment as is familiar to us in the domestic work of the period. Thus we have oriel windows jutting out over the water, which were later replaced by the more sober lines of the Georgian period, with its tiers of balustrades and windows divided by pilasters. The charm and picturesque character of the work of both periods is largely the result of the manner in which the horizontal and vertical lines follow and conform to the shipbuilders' structural curves. With the evolution of the steel-framed and steam-driven ship of immense size and tonnage these curves have naturally become flattened and minimised, while the great disparities between the heights of different parts of a ship's outlines have mostly disappeared, to be replaced by the modern liner, a great steel tank, every line of which is found by calculation and every part of which is fundamentally thought out with a view to save unnecessary weight and to provide the greatest available space for engines, cargo, and passengers. Mr. Davis also pointed out another change which has come about since the time when the small size of ships and their slow and uncertain navigation made a voyage an adventure necessarily more or less hazardous and by no means comfortable. The speed of the ocean liner has rendered a voyage a brief episode, while its great size has made it possible to reproduce within the limits of a vessel most of the features and comforts that the most fastidious and delicate are used to in their daily lives on land. The ocean liner has become an elaborate mass of mechanism carrying a floating hotel, and the design of the passengers' accommodation is only differentiated in details from that of a luxurious hotel or club on land. And just as the art of the theatre is designed to produce illusions, the architectural adjuncts of a great liner are most successful if they can suggest the closest analogy to conditions which obtain on land. The architect called in to design the decorative proportions and details of the passengers' rooms therefore has, in a manner, to suggest illusion just in the same way as a scenic artist; while in another sense he has to act as a skilful practical planner who has to utilise every inch of space to the fullest advantage in much the same manner as a designer on land has to

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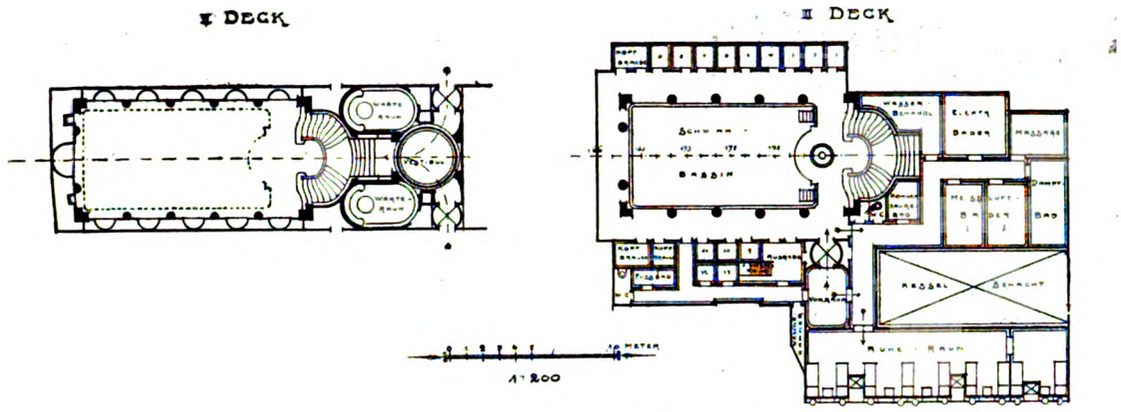


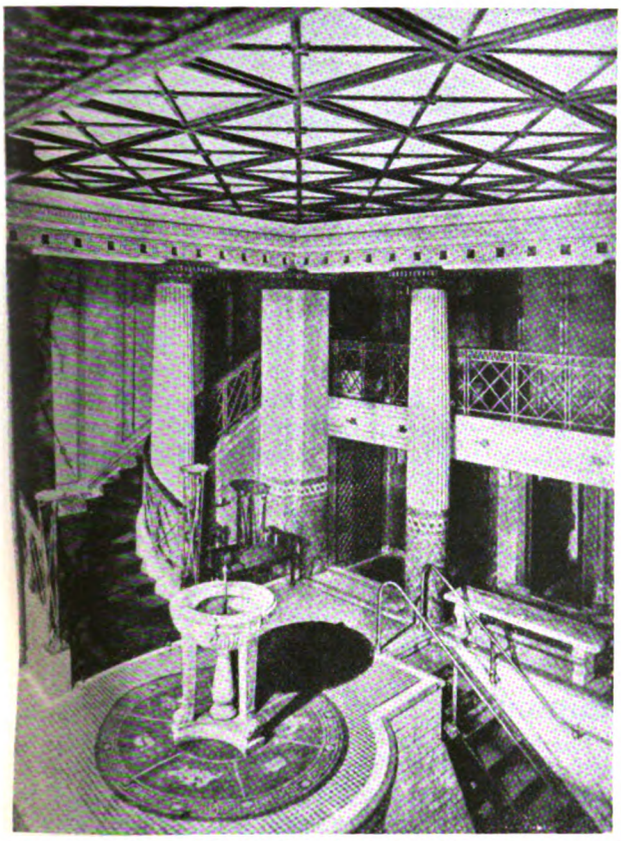
S.S. "AQUITANIA"—SMOKING-ROOM DETAIL

make the fullest use of an extremely valuable site. It is this dual responsibility which renders the work of the architect who is called in by a shipbuilder especially interesting and difficult, and Mr. Davis, in giving the results of his experience to his fellow-architects, performed a friendly service for which they owe him gratitude. The description which he gave of the manner in which an architect has to work in conjunction with the naval architect or designer was most interesting, and was well exemplified by the drawings he showed of the steel framing furnished to the architect showing the limits of space within which his decorative scheme must be confined, and the second a decorative scheme which he prepares for discussion with his clients, and thirdly the fully detailed drawings made after full discussion. (These two latter drawings are shown among our inset illustrations, while we give an illustration of the steel setting-out in text illustration.) The illustrations of the fine interior vista of a German liner made possible by the division of the smoke-stacks of the vessel show an exceptionally fine example of symmetrical planning by M. Mèwes and form an interesting comparison with the fine plan of the *Aquitania* where the smoke-stacks divide the plan into sections. The importance of correcting the effects produced by the necessity of following the varying cambers of decks and floors by a variation of horizontal and vertical lines of the subsidiary features of decoration were also well and fully illustrated. Speaking generally, this amounts to dividing the full amount of divergence or difference in every subsidiary feature introduced so as to mask or hide the divergence of lines which have to produce the impression of true parallels. Another difficulty alluded to by Mr. Davis was the treatment of immense longitudinal spaces so as to give the fullest value to the limited heights made possible by the exigencies of construction. The architectural treatment of ships may therefore be described as a skilful attempt to produce illusions so as to obtain the nearest approximation to proportions to which the eye is accustomed in land architecture. Again, although the life of an ocean liner may be said to be limited to a comparatively short span of years, the necessity of designing decorations which can withstand a complicated series of strains in every direction renders it absolutely necessary to employ the finest materials and workmanship which might seem unnecessary, and even extravagant, in an ordinary building; so that it may be said that the employment of anything but the highest and most perfect technical skill and finish would be worthless and inappropriate to the purpose. Joinery must partake of the nicety of finish associated with the best cabinet work, and no materials save the best can fittingly be used. Again, the speaker very reasonably pointed out that a unity of decorative style which may be well considered essential in a building is apt to create an impression of monotony when applied to a great ship in which people are cooped up for a term of days, and it is as legitimate and reasonable to introduce a design suggestive of different periods in different parts of one ship as it would be wrong to follow a similar method in the design of a building. The problem of the "dry architect," as Mr. Davis humorously called him, is to design the accommodation which might serve for the inhabitants of some small town within a strictly limited height and within a space of some 80,000 square feet, and to eliminate as far as possible the impressions which would be conveyed by the proportions of the space allotted to him, and this *without* adding unnecessary weight or hampering a *delicate* mass of requirements imposed by the manifold practical requirements of a great ship. Mr. Davis's experience has been gained in the design of trans-atlantic liners, but he referred to the different



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SWIMMING BATH, S.S. "BERENGARIA," (*vice* "IMPERATOR")

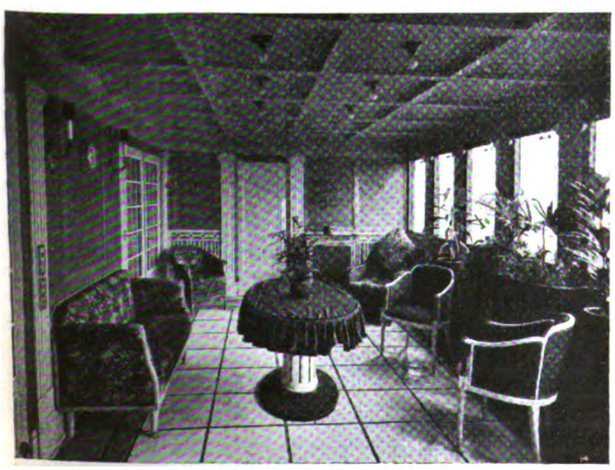
requirements brought into play in dealing with ships designed to meet tropical requirements; and in the plans of a recent P. & O. liner he showed the arrangements made to give direct ventilation to tiers of staterooms by stepping the floors over and cutting in tunnels to the portholes of the rear tiers of staterooms. The very great services rendered by our steamship companies during the War were very fittingly alluded to. Seeing how essential the question of transport became to us, it may well be doubted whether, without the accumulated result of the experience and enterprise of those who founded and maintained our great lines, the War would have been brought to a successful conclusion. The transport of arms from America, the conveyance of the American armies, and the revictualling of this country might have been well-nigh impossible had it not been for the founders of the Cunard, White Star, Allan, and other great steamship companies. In times of peace the great pioneers of the maritime



S.S. "HOMERIC"—SITTING-ROOM GRAND S UITE.

world may have accumulated fortunes while giving employment to thousands of skilled and unskilled workers, but in a time of great crisis they proved a very important part of the defences of the country—another instance of the manner in which individual enterprise has benefited a whole community. The fact that the great liners were stripped of all their interior decoration in the compass of a few hours to meet the exigencies of war is another reminder of the very different nature of the architectural problem as propounded by the ship-builder as compared with that we are accustomed to on land.

It is unnecessary to traverse a subject which has been dealt with from a practical standpoint by one who has an exceptional knowledge of the nature of the problem, but we may record our general impressions, which are these: the aid which an architect can render to the ship-owner and to his *confrère* the marine architect is to prepare within the given stage scenic effects which will please, and, if possible, delight, the cosmopolitan traveller, and may even, like the theatre, transport him into a world of imagination, while not neglecting every practical device by which skill can compass the best use of



S.S. "BERENGARIA" (*vice* "IMPERATOR").
ROYAL SUITE VERANDAH.

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S.S. "HOMERIC"—LOUNGE.

every inch of space. It is, further, clear that, should we ever arrive at an era when eclectism will be finally routed by the forces of tradition, the ship, like the theatre, will be the last resort of those who strive to maintain a freedom from an all-encompassing method of design. It is fortunate for architects that our great shipbuilding firms have so freely and liberally called in the aid of good architects, instead of contenting themselves with such aid as could have been furnished by decorative firms. The examples we illustrate will, we trust, prove that a liberal and enlightened attitude has been justified by results, and that architects, though not called on to produce monuments for posterity, may feel both ambition and pride gratified in being employed on or to take even a subordinate part in the completion of the great ships which, as a race, we look on with pride and affection.

Illustrations.

ARCHITECTURE AS APPLIED TO SHIPS:—VIEWS OF S.S. "HOMERIC," "LEVIATHAN," "NARKUNDA," "EMPRESS OF ASIA," "LACONIA," AND SHIPS OF THE STUART PERIOD.

Notes and Comments.

A Novel Competition.

We give particulars in our advertisement columns this week of a novel and interesting competition promoted by Messrs. B. Whitaker & Sons, Ltd., which takes the form of prizes offered for the best designs carried out in the bricks mentioned, the assessor appointed being the Editor of THE ARCHITECT. Photographs of buildings to the designs for which prizes are awarded will be published in THE ARCHITECT. The history of the undertaking is briefly as follows:—

A year ago the Huncoat Plastic Brick and Terra Cotta Works, near Accrington, were in the hands of a Receiver, the works were just kept running, deliveries could not be guaranteed, and the system of brickmaking was out of date. Messrs. B. Whitaker & Sons, Ltd., of Leeds, recognising the splendid properties of the Accrington shale, purchased the yard and at once started to improve the plant and to build kilns on the most modern methods employed in brickmaking. Mr. A. Braithwaite, the managing director, has been a contractor himself and has set out to produce a brick which will be without equal in England. The works are managed by a man who has studied brickmaking and terra-cotta ware production at Ruabon and Accrington for over twenty-five years. So successful have the firm been in their methods that although the name of "Huncoat" had almost ceased to be known in the Accrington brick trade, they have kept the works on full production during the winter months, while other brickyards have closed down or worked on part production.

In addition to building bricks, the works are equipped for turning out large quantities of engineering and sewer arch bricks, equal for crushing strain and acid resistance to the best Staffordshire blues.

Cheap Architectural Services.

A Mr. Thornton, of Birmingham, has made himself prominent in the housing controversy which has been raging there by making statements as to the possibility of reducing the cost of houses. He can produce contractors who will erect houses complying with all the requirements of the Ministry of Health for £450, to cover drainage and fencing, and architects who will design and superintend them for an inclusive fee of £10 a house. Mr. Cooke, of Birmingham, is stated to have offered to supply Mr. Thornton with the names of ten architects who are willing to work on these terms, and we are somewhat curious to know how they can do it or what modifying stipulations they would introduce. We can understand, for instance, that if one hundred houses were to be erected from one plan in close proximity to one another, and at the same time that an architect could be found who would be able to live on the £1,000 he would receive for the work, though the superintendence of one hundred houses might well take him all his time. But what if he were called upon to superintend twenty houses at a distance from his place of residence and from one another? We believe that the architect who is willing to accept such a scale of remuneration must be either so badly off that he is glad to accept anything, however inadequate, or so well off and philanthropic that he can afford to make a partial gift of his services. We would not interfere with the freedom of action of any architect in respect to the fees he is content to accept, but suggest that in accepting such a scale he may, as the Americans say, be "biting off more than he can chew."

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Further Reflections on Housing.

Arising out of our preceding note on "Cheap Architectural Services" and dovetailing in with the subject we have an interesting effusion from the National Housing and Town Planning Council before us in which Mr. Henry Aldridge reminds us gently and forcibly that the working classes are bent on seeing the National Housing Scheme through, and that candidates of all political parties must "toe the line." This would be all very well if the country could foot the bill of providing the working-man with everything he requires at the expense of a comparatively small section of the taxpayers, but, as everyone knows, it cannot. We would remind Mr. Aldridge that the strongest appeal to the average elector at the next election will be made by those who insist on the necessity of cutting down expenditure and reducing taxation. This cannot be done by simply cutting off one leakage and encouraging another, but can only be effected by emphasising the doctrine that all classes of the community except the infirm or the absolutely destitute must live on the results of their own exertions. We have for years been robbing Peter to pay Paul, and the whole community, outside a comparatively small section of would-be revolutionists, now understand that the process must stop. Capital has been overtaxed to the detriment of the working classes, because the accumulation of capital goes in the main to provide more and more employment and not, as the working classes are led to believe by ill-advised agitators, in providing luxuries for the rich. As has been well and clearly pointed out, if the proceeds of capital had been mainly spent in luxuries we should have had revolutionary disorder long ago; but only a proportion, and quite a small proportion, of the whole has been so spent. We remember a guide in Genoa whom we asked whether he liked the German visitors to that city. His reply, given with a shrug, was "English, German, French, what does it matter when we see a foreigner we say there goes part of our income," and so in the world of industry the working-man, if he is wise, will say of the capitalist: "There goes part of my income," for it is in the continued activities of those who find they can make profits that the working-man is ensured of a bank from which his wages can be drawn. The man or the company who cannot make profits has to close down his business while the man who can make profits ensures steady wages to the working classes. If profits are high they can be reduced automatically by demands for higher wages, always assuming that what is left satisfies the capitalist and he does not feel he is working in vain. Agitators have tried for years to think out a system which would replace what has gone on since the beginning of the world, but they are as far as ever from arriving at any solution of the problem. Meantime, there is, it seems to us, no reason why the architect should labour on unreasonable terms in a perfectly futile attempt to cheapen things for the Ministry of Health or for any section of the Government who have put the industrial machine out of gear. They will hurt themselves in the process, but will not make the impossible possible. In other words, the architect will penalise himself in vain, for by working on unsatisfactory terms he cannot make that whitest of elephants—the Government Housing Scheme—a success, even though Sir Charles Ruthen says the architect has profiteered "in respect to his art." We cannot, all of us, look forward, like Mr. Aldridge, to a prominent post in a Labour Government, from the safety of which we can comfortably inspect the ruin to which absurd theories have reduced a great country.

The Office of Works.

The "Morning Post" has once more done good service to the interests of clean and efficient administration by calling attention to the necessity of curtailing the superabundant activities of the Office of Works. It pertinently says that in respect to housing schemes it would be interesting to know in how many cases, if any, the private architect had been replaced by the Department in respect to State housing schemes. The expense of its operations was incredible, as shown by the estimates of which Sir Alfred Mond's explanations are far from lucid. Further, the Department had secured the design and erection of important Government buildings which before the War would have been submitted for outside competition. Rumours reach us from time to time of the very unsatisfactory nature of the designs for such buildings. Our contemporary takes the view, which we are sure is correct and well founded, that all questions relating to the maintenance and repair of historic buildings of importance should be placed in the hands of the highest professional authority, and that the Office of Works should be restricted to its original function—that of carrying out small repairs, other and more important work being entrusted to practising architects. All of us were glad to learn of the appointment of the Earl of Crawford in succession to Sir Alfred Mond, but the task of drastically reducing the Office of which he is the head to its legitimate functions is probably outside his powers, and can only be effected by external pressure and agitation.

Competition News.

The Competitions Committee of the Royal Institute of British Architects inform members that as the Trujillo Competition appears to be intended rather for sculptors than for architects, the Committee's warning notice has been withdrawn.

Forthcoming Events.

Friday, March 3.—Town Planning Institute. Meeting at 92 Victoria Street, S.W. 1. Papers by Mr. Barry Parker, F.R.I.B.A., entitled "Zoning to Secure Amenities," and by Mr. W. H. Gaunt, O.B.E., entitled "Zoning as applied to Industry and Public Services." 6 p.m.

Saturday, March 4.—Architectural Association. Visit to L.C.C. Housing Scheme, Becontree.

Monday, March 6.—Royal Institute of British Architects. Special and business general meeting at 9 Conduit street, W. Discussion on "Higher Buildings for London." 8 p.m.

—— Surveyors' Institution. Meeting at 12 Great George Street, Westminster. Paper by Mr. B. Price Davies, F.S.I., entitled "The Analysis of Building Costs." 8 p.m.

Tuesday, March 7.—Liverpool Architectural Society. Meeting at 13 Harrington Street. Paper by Mr. H. A. Dod, M.A., A.R.I.B.A., entitled "The Interior Decoration of a Liner." 6 p.m.

Thursday, March 8.—Society of Architects. Meeting at 28 Bedford Square, W.C. Paper by Mr. John A. Knowles entitled "The Study of Ancient Painted Glass." 8 p.m.

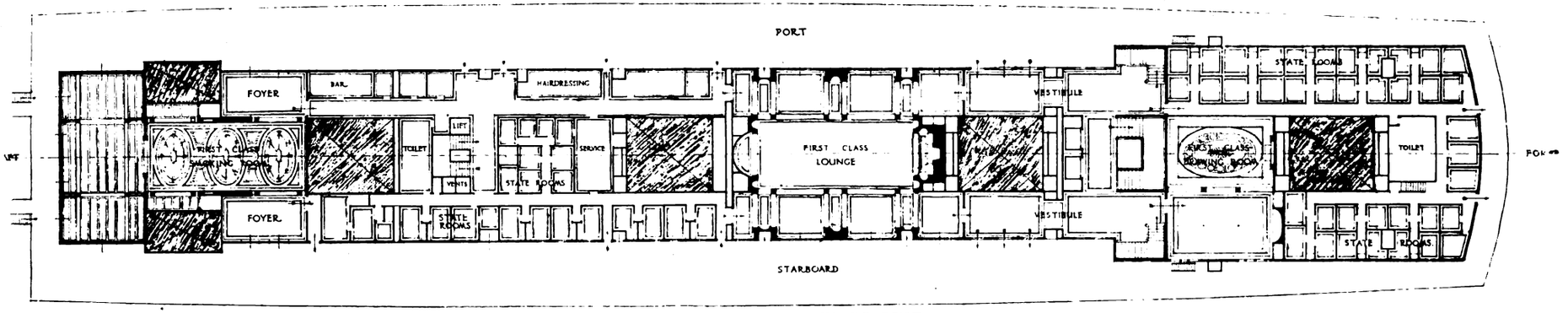
Friday, March 10.—London Society. Meeting at John Street, Adelphi. Paper by Capt. Lyon Thomson, F.S.A., entitled "The Open Air Life of London." 4.30 p.m.

—— Garden Cities and Town Planning Association. Annual Meeting at Conference Hall, Olympia. 6 p.m.

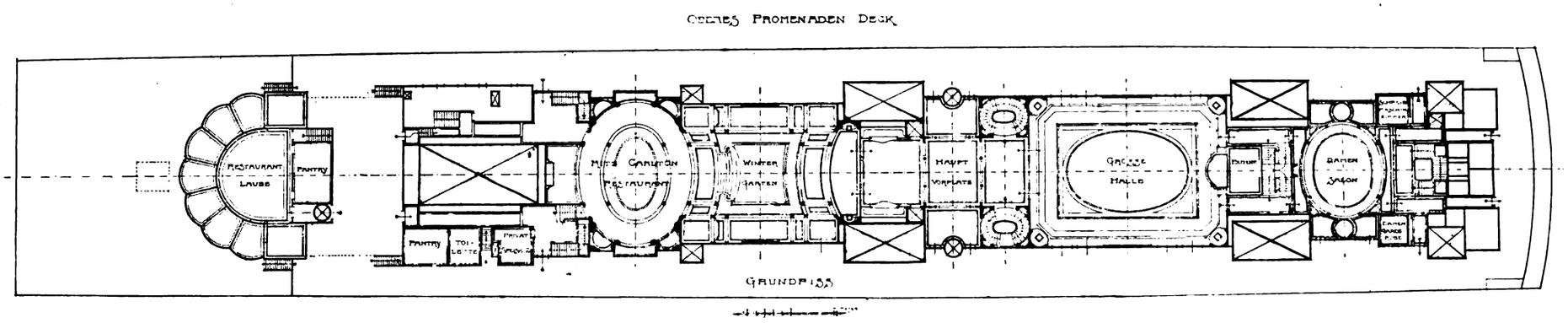
The Chepstow Urban District Council has decided the surveyor should receive £150 as remuneration for extra work entailed by the drawing of the new cattle market plans, &c. The cost of the new market will not exceed the £10,000 received from the Government.

At a general meeting of the South Wales Institute of Architects (Western branch), held at the Baltic Lounge, Swansea, the following officers were elected for the ensuing year:—Chairman, Mr. Charles S. Thomas, F.S.Arc.; hon. sec., Mr. J. Herbert Jones, F.S.Arc.; hon. treasurer and librarian, Mr. H. C. Portsmouth, F.S.Arc. The following were elected to the Council of the South Wales Institute of Architects:—Mr. Charles S. Thomas, F.S.Arc., Mr. H. C. Portsmouth, F.S.Arc., Mr. J. Herbert Jones, F.S.Arc., Mr. J. Cook Rees, F.S.Arc., Mr. Glendenning Moxham, F.R.I.B.A.; associates' representative, Mr. G. L. Crocker. The first prize in the measured drawings competition was awarded to Mr. W. T. Lloyd for a wash-drawing of the orangery at Margam Park. Mr. J. C. Gower was awarded second prize for a pen-and-ink drawing of the same subject, and Mr. E. A. E. Evans came third with a pen-and-ink drawing of the "Inigo Jones" Pavilion at Margam.

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S.S. 'AQUITANIA," CUNARD LINE.



S.S. "LEVIATHAN" (*vice* "VATERLAND.")

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London Art Galleries.

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The Leicester Galleries are at present holding an exhibition of paintings by William Shackleton, and at the same time the twelfth exhibition of the Sennefelder Club for the advancement of artistic lithography. The art of William Shackleton possesses elements of very great interest. Attracted in his earlier days by the creations of G. F. Watts and also probably by the Pre-Raphaelites, more especially D. G. Rossetti, the artist went to Italy, and came under the spell of the great Italian Masters of the Renaissance; above all, the Venetians, with their wonderful glow and warmth of colour, and among them that "lyrist of colour," Giorgione. In a notice of William Shackleton, which appeared in "The Studio" of January last, Mr. Richard Church has pointed out that Giorgione was to this artist "one of the first intoxicants to be found in Shackleton's work which followed these days in Italy. From that time the special quality of *ecstasy*, an emotional power always to be found in his colour work, was first apparent."

That influence seems never since to have wholly left him, even though, as the writer just quoted points out, among the Italians the intellectual quality of Leonardo came also to claim its due: it appears in the emotional character, the glow of colour of such paintings shown here as "The Song of the Evening" and "The Song of Morning," "The City of the Golden Gates," and in pure landscape (water colour—all the others being in oil) the two paintings of Gordale. In these paintings colour becomes the keynote of a harmony like that of music, and "enthroned highest as the source of beauty"; just as I wrote once of Giorgione himself in my "City Triumphant" his life "passes away like a strain of music in which love remains the dominant note, the motive of the harmony . . . he diffuses himself as an influence over the whole Venetian art of his time." And this quality, partly perhaps personal and partly derivative, appears in all Shackleton's later work shown of the last ten years, uplifting it into a higher mood; but less so, to my feeling, in "Phryne at Eleusis," in "The Mackerel Nets" (though this is 1913), and the earlier "Bianca di Capello" (1897) on Lung 'Arno with two of her companions.

The Sennefelder Club keeps up its level of achievement in this year's display, which includes among the French contributors Steinlen, Fantin-Latour, Veber, Forain, Gavarni, and Puvis de Chavannes, and among the British, Whistler ("Luxembourg Gardens"), and that fine draughtsman, Frederic Sandys, in his famous satire on his brother Pre-Raphaelites, "A Nightmare," caricaturing John Millais's painting of "Sir Isumbras at the Ford," with Millais himself as the armed knight, Rossetti and Holman Hunt as the children carried on his saddle, and John Ruskin as his "mount" in the form of a braying ass.

Among the hundred or more lithographs here I shall select some of the work of our own artists which struck me, commencing with a charming study—"Motherhood" by the late Claude Shepperson; then F. Ernest Jackson in the fine quality of his "Eve," Louis Thomson ("A Sunny Morning in Kensington Gardens"), Saltoft, Spencer-Pryse ("Joan"), Edith A. Hope ("Street Singers"), Anthony Raine-Barker ("Durham from Observatory" and "The Southdown Shepherd"), McClure Hamilton and Charles Shannon, and Ethel Gabain ("Gavroche"). Among the Frenchmen here I omitted Toulouse-Lautrec; his study of "Femme Couchée" is supremely clever in the smiling figure of a recumbent "Parisienne."

At the gallery of Messrs. Bromhead, Cutts & Co., in Cork Street, Burlington Gardens, the Society of Graver Printers in Colour opened last week its seventh annual exhibition of work by members.

This Society was founded in 1907 for the promotion of original colour-prints, and an important rule of the Society is that the authors of the prints should carry out the entire process—that is to say, the artist's design, the engraving, and the subsequent printing—so that each print is an original production by the artist alone. Any material is permitted for these colour-prints, either wood, metal, or stone, and we shall see in going through the pictures that there is very great variety; but monotypes are not admissible.

For instance, here "La Crepuscule" and "Malines," by E. A. Verpilleux, are wood engraving, while woodcuts are shown by Ada Collier in her delightful "Bronze Horses," which are the famed horses of S. Mark, by A. W. Seaby, whom I know best for his birds, which he tells me he enjoys for their decorative pattern, but who here gives us landscape in "The Needles" and a group of "New Forest Ponies"; in W. J. Phillips and John Platt, whose Cornish coast drawings show markedly the influence of Japan; and, lastly, the Japanese, Y. Urushibara, who has, I understand, studied with Frank Brangwyn, and who has here two delightful colour woodcuts inspired by Italy, "Misty Morning, Venice," and "The Queen of Night," this last taken, I believe, from the hillsides of Fiesole, with the golden moon rising behind the monumental cypresses. The President of the Society, M. Theodore Roussel, sends a fine contribution in "The Steamer" by a technical method of his own: on the other hand, A. M. Shrimpton's "Passing of the Flowers" is relief engraving in colour on metal. The Society is doing good work in art, thorough in technique and beautiful in design. Besides London, it has held exhibitions in Paris, New York, and Dresden.

At Walker's Galleries there are now exhibitions of water-colour drawings by J. S. C. McEwan Brown, some of which—notably "Silver Gleams" and "An April Day," "Seascape from Bournemouth Bay"—are successful in their treatment of cloud cumuli behind a foreground of water or flat levels; and of "Oil Paintings, Water-Colours and Pastels" by Evelyn and Marjory Watherston, the latter being successful in her full-length of "Dorothy," a beautiful girl rather Spanish in type, and her child-study of "Molly."

The exhibition of selected water-colour drawings by artists of the Early English School, which are on view at Messrs. Agnew's Galleries, in Old Bond Street, during the months of February and March, is of the first importance. As usual in these annual displays, the works chosen are very carefully selected, and include paintings by Peter de Wint, whose "Cookham" and "Matlock" could hardly be surpassed; by J. R. Cozens; J. M. W. Turner, who is very finely shown, both in his early period ("Geneva and Mont Blanc," *c.* 1810) and in such later visions of colour harmony as the "Pallanza, Lago Maggiore" (*c.* 1842). What this master could do in purely architectural design is seen in his interior of Salisbury Cathedral, looking towards the north transept.

The present exhibition at the Grosvenor Galleries includes as interesting picture of South Georgia, the "Gate of the Antarctic," where Sir Ernest Shackleton died in January on board "The Quest," and where his body is to be buried. The picture was painted in November 1914 by Mr. George Marston, one of the members of Sir Ernest Shackleton's expedition of that year. It was carried on the "Endurance" through her long drift in pack ice on the Weddell Sea, and recovered from the wreck after this ship had been crushed by the ice and abandoned in October of 1915.

Two important sales of old arms and armour are those of the Meyrick collection, the property of Leonard Brassey, M.P., which was purchased *en bloc* from the Meyrick family about 1880 by the late H. A. Brassey, M.P., and which was sold on Tuesday, February 21, at Messrs. Christie's; also Sir Harry Waechter's arms and armour, sold on Monday, February 27. Both these are important, the Meyrick armour being one of the finest private collections formed in the nineteenth century.

S. B.

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Modern Methods in Building Construction.—VII.*

By Albert Lakeman, M.S.A., M.C.I.

SURPLUS SOIL TRANSPORT (*cont.*).

The second method of transport given in the previous notes was that of horse-drawn wagons or carts, and although this method does not need to be discussed at length it is useful to introduce a few points in connection with same.

Horse-drawn Wagons.—The use of horses and carts has been applied on a large scale in the past, and it is still adopted on many schemes of all sizes, and there is no doubt that it will be many years before the method is entirely superseded by more economical arrangements. It is extremely flexible, and it is also suitable for positions when good roads for mechanical transport cannot be obtained and the laying of narrow-gauge tracks is not practical owing to special circumstances. The initial outlay per unit is, of course, less than that required for large steam- or petrol-driven wagons, while the services of general carters can usually be easily obtained by a contractor in any locality, and thus it will be possible to adopt this method of transport without the acquisition of horses and carts by purchase outright if it is necessary to restrict the initial outlay in connection with a particular scheme. The speed that can be achieved will not equal that possible with motor-lorries, but it will be much greater than that resulting from hand labour alone. It is quite possible to cope with the output from a mechanical excavator, such as a steam-shovel, with horse-drawn wagons, but it will necessitate a large number of vehicles and a good organisation to avoid delaying the excavator, and especially if the haul to the tip is comparatively long. Horse-drawn wagons are still used on many American contracts, but these are of a special type, as they are four-wheeled drawn by two horses, and have an opening bottom, which allows the driver to dump the contents without getting off his seat or even stopping the horses, the operation of opening and closing the bottom being by means of a lever situated at his right hand close to the seat. This type of wagon is easily operated over rough roads, and the load can be unevenly distributed without bringing the weight on to the horses, whereas with the two-wheeled type the method of loading may seriously affect the total amount of work that can be done by the horse without undue fatigue. With regard to the cost of horse-drawn wagons for the transport of soil, this can be taken at approximately 1s. 6d. per ton-mile under ordinary average conditions and thus it will be seen that it is very economical as compared with hand labour, as the amount is only one-fifth of that given for the latter. The method cannot be described as a modern one, however, and it possesses limitations which will not allow it to successfully compete with modern methods when the excavation scheme is an extensive one.

Steam-driven Wagons.—The steam-driven wagon for transport can be considered as a method which is essentially a modern one, because the development of this type of vehicle during recent years has been considerable, and it is now universally adopted as one of the principal transport mediums for heavy loads, over both short and long distances.

It will be shown that it is very economical, and it is generally claimed by the makers that the cost per ton-mile is less than that of any other system.

The steam wagon will obviously be of great service to a large contractor for general haulage work, apart from the question of its use in the transport of surplus soil only, and as the subject is being dealt with it may be pointed out that the questions of economy and speed as here analysed are applicable to this general work, and it is not proposed to confine the notes entirely to the haulage of soil, because this would necessitate further reference in subsequent notes, with a risk of unnecessary repetition.

In dealing with the question of suitability it may be stated that this type can be successfully applied to all schemes when suitable roads are available, or can be provided at a reasonable cost, as the method gives flexibility, and the load carried is sufficient to enable the transport to cope with the output from any modern excavating equipment. It can operate over long distances, and the speed attained will permit the minimum number of units to be employed. It can be equipped with tipping devices which make the dumping of the contents a simple operation, and it will provide a definite output that can be accurately estimated under known conditions. The initial outlay will, of course, be an item for serious consideration, because it will not be a good business proposition to invest capital in large transport units which will not be kept fairly well employed, but the question of its general use, apart from excavation work, has to be taken into account, and it will be found that the outlay will soon be repaid by the saving in operating cost. Some comparative operating costs can be given, and in this connection the particulars are best stated by putting forward the claims of the makers of the various types, because they are able to compile such costs over a wider range than anyone else.

The operating costs will vary from time to time owing to fluctuations in the price of fuel and other items; and the district in which the wagon is operating will also affect the costs, as the condition of the roads, the gradients to be negotiated, and other local factors must necessarily be taken into account. The haulage costs can be put into two divisions, viz.: (a) Standing charges, and (b) running costs. The former will be a constant charge, independent of the mileage accomplished, whereas the running cost will naturally be governed by the number of miles run.

A well-known type of steam wagon is the "Sentinel," supplied by the "Sentinel" Waggon Works (1920), Ltd., of Grosvenor Gardens, London, and it is interesting to note that the firm claim economy in running costs for their wagons as compared with similar-capacity petrol wagons. The haulage costs in Britain, corrected to July last and divided into standing charges and running costs for "Sentinel" steam-wagons, with and without trailer, and for petrol lorries, as put forward by this firm, are as follows:—

STANDING CHARGES PER WEEK:—

Item.	4-ton "Sentinel"			4-ton Petrol			6-ton "Sentinel"			6-ton Petrol			10-ton "Sentinel" and Trailer Combination.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Insurance (average) ...	0	6	3	0	7	6	0	6	3	0	7	6	0	6	9
Rent., &c. (average) ...	0	12	6	0	12	6	0	12	6	0	12	6	0	12	6
Interest on first cost...	1	9	8	1	9	8	1	10	9	1	10	9	1	17	5
Licence and registration	0	12	0	0	10	0	0	12	0	0	10	0	0	14	0
Wages (average) ...	7	0	0	7	0	0	7	0	0	7	0	0	7	0	0
Total per week ...	10	0	5	9	19	8	10	1	6	10	0	9	10	10	8

RUNNING COSTS, IN PENCE PER MILE:—

	d.	d.	d.	d.	d.
Fuels—Coke or coal, average 55s. per ton; Petrol at 2s. 8d. per gallon	1·98	5·33	2·64	8	3·05
Lubricants—oil and grease	·4	·7	·5	·75	·6
Tyres, based on average life	1·5	1·97	1·8	2·88	4·43
Repairs and maintenance	1·0	1·77	1·0	2·32	1·5
Depreciation on "life"	1·57	2·35	1·6	2·4	2·42
Total per mile, in pence	6·45	12·02	7·54	16·35	12·00

* I. Introduction, Steam Shovels, Jan. 13; II. Steam Shovels (*cont.*), Trench Diggers, Jan. 20; III. Grab Buckets, Scrapers, Jan. 27; IV. Drag-line Excavators, Feb. 3; V. Derricks and Cranes, Radial Loaders, Feb. 17; VI., Surplus Soil Transport, Feb. 24.

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In the above figures the following is the basis of the fuel consumption:—

4-ton "Sentinel"—
20 miles per cwt., plus 20 per cent. for wastage, etc.
4-ton Petrol—
7-8 miles per gallon, plus 20 per cent. for wastage, etc.
6-ton "Sentinel"—
15 miles per cwt., plus 20 per cent. for wastage, etc.
6-ton Petrol—
5 miles per gallon, plus 20 per cent. for wastage, etc.
10-ton "Sentinel" and Trailer Combination—
13 miles per cwt., plus 20 per cent. for wastage, etc.

In the case of tyres the usual life on the "Sentinel" wagon without trailer is taken as 12,000 miles, and for petrol lorries 25 per cent. less, while with trailer the wagon tyres are taken at 7,000 miles and the trailer tyres at 12,000 miles.

In calculating the depreciation allowance the life for "Sentinels" is taken as 150,000 miles, or 120,000 miles with trailer, and 100,000 miles for petrol lorries.

To make a comparison with the costs of transport by other methods it is necessary to reduce the previous figures to the ton-mile basis, and in order to do this the average number of miles per week that will be run must be stated. Under ideal conditions the mileage accomplished may be 400 miles or more per week, but a fair conservative figure will be 200 miles, and to arrive at the cost per ton-mile it will be necessary to divide the standing weekly charges by 200, add the running costs per mile, and divide the result by the capacity in tons of the wagon. In the case of the 4-ton "Sentinel" this will be as follows:—

Standing charges, £10 0s. 5d., divided by 200 equals 12.02d., plus running cost of 6.45d., equals 18.47d. per mile; and as the capacity is 4 tons the cost per ton-mile is $\frac{18.47}{4} = 4.61$d.

It will be seen that the cost shows a considerable saving over transport by horse-drawn wagons when the price per ton-mile was given as 1s. 6d., and, in fact, the cost to transport four tons one mile by steam-wagon is practically equal to the cost of transporting one ton only over the same distance by horse-drawn wagons. A comparison with hand labour is obviously one which will be absurd, as the steam-wagon can transport the equivalent of twenty tons over one mile at the same cost as one ton can be taken over the same distance by hand labour.

The price per ton-mile for the 4-ton petrol wagon on the figures in the comparative table will work out as follows: Standing charges, £9 19s. 8d., equals 11.9d. per mile, plus running cost of 12.02d., gives total of 23.92d. for 4 tons, and $\frac{23.92}{4} = 5.98$d. per ton-mile, or an increase of 1.37d. over the cost of the 4-ton "Sentinel," which is nearly 30 per cent.

The larger-capacity wagons will give a cheaper price per ton-mile if they are loaded to give a full load on the journey, and for the 6-ton "Sentinel" this works out at: Standing charges, 12.99d. per mile, running costs 7.54d. per mile, which makes the cost per ton-mile $\frac{20.53}{6} = 3.42$d. These figures should be sufficient to illustrate the economy that can be effected by the use of modern means of transportation, and to show how the makers' claims are put forward to support their type of wagon. With regard to the saving of labour, it was stated in the last article that the output per man with hand labour could be taken as 10 ton-miles per week. The output with one 4-ton steam-wagon will equal 800 ton-miles per week, and each wagon is, therefore, equal to eighty men. It will be realised that with several wagons the saving in labour is enormous, and on large schemes it will be absolutely essential to adopt a labour-saving, economical, and speedy means of transportation.

It is interesting to see what work must be done to justify the initial outlay, and for this purpose we can take the cost of the wagon at about £1,200. The estimated life is 150,000 miles, and as the load is 4 tons we can assume that 50 per cent. of the distance will be under load and 50 per cent. empty, giving an average of 2 tons over the whole distance, or an estimated total of 300,000 ton-miles work performed.

The cost per ton-mile with horse and cart is 1s. 6d., and with the wagon 4.61d., showing a saving of 1s. 1.39d. with the latter. To simplify this the saving can be taken as 1s. per ton-mile, and the initial outlay of £1,200 will necessitate only 24,000 ton-miles out of a possible 300,000 ton-miles to make the necessary saving. On this basis the wagon will pay for its initial cost twelve times over before it will be scrapped. The margin is such a large one that the most ardent supporter of horse-drawn transport will be compelled to admit that the claim of economy on the part of the steam-wagon makers is amply justified.

The two types of "Sentinel" wagon that will be of the most service to contractors will be the 3½-ton and 5-ton hydraulic end-tipping wagons, the latter of which is illustrated in fig. 36.

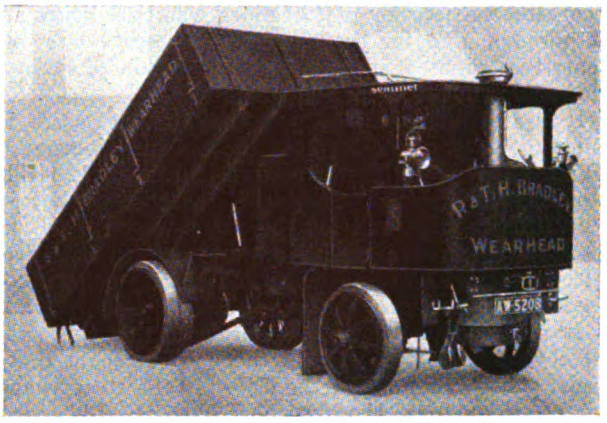


FIG. 36.—THE STANDARD "SENTINEL" 5-TON HYDRAULIC END-TIPPING WAGON.

This wagon has a hydraulically operated end-tipping body of 195 cubic feet capacity, and inside dimensions 13 ft. long, 6 ft. 8 in. wide, and 2 ft. 3 in. high. The body sides are hinged at the bottom, and the backboard is hinged at the top to allow free discharge of the load when tipping. The front of the body is fixed, and the floor is lined with stout sheet steel. This vehicle will carry a net load of 5 tons at a speed of 8 miles per hour, and will carry this load up gradients of 1 in 8 at a good speed. When trailer work is convenient the wagon will also haul an additional load of 4 tons in a trailer, and, so loaded with a net load of 9 tons, will haul it up gradients of 1 in 10 on a reasonably good road surface. It is claimed that one man can perform the tipping by means



FIG. 37.—"SENTINEL" 5-TON STANDARD ALL-STEEL END-TIPPING WAGON.

of a small cock so rapidly that 2½ minutes suffices to discharge the load and return the body to the level position. The water-pressure for the tipping action is applied to a ram acting directly under the body, and it is stated that there is no jerking and straining, although the operation is speedy.

Another example of a 5-ton end-tipping wagon is illustrated in fig. 37, where the body is constructed entirely of steel, and this type will be very desirable for certain classes of work where rough usage is unavoidable.

There will be some advocates of the petrol-lorry, who hold the opinion that the steam-wagon will be beaten

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by speed on a long run when carrying a full load; and in this connection it is interesting to note that a test made in November 1920 over a distance of 120 miles showed the steam-wagon to advantage in this respect.

A Wakefield firm, who were the owners of a petrol-wagon and a "Sentinel" wagon, stated that the former vehicle could accomplish the 120-mile trip between Wakefield and Birmingham in 10 hours, but it could not be done with the latter type. The makers of the "Sentinel" wagon did not agree with this statement, and requested the owner to make a definite test with the two wagons in order to prove that their vehicle was equal to the task.

The useful load on each wagon was 5 tons 7 cwt., and the two vehicles left Wakefield early in the morning of the same day. The total time taken by the steam-wagon for the journey of 120 miles was nine hours and ten minutes, and for the petrol-wagon ten hours and twenty-two minutes, showing a saving in time of seventy-two minutes in favour of the steam-wagon.

It is also interesting to note that the fuel costs for each wagon were kept for both the outward journey of 120 miles loaded and the homeward journey of 120 miles unloaded, and for the "Sentinel" the cost worked out at 2.77d. per mile, and for the petrol-wagon 7.0d. per mile. This test was carried out by an impartial firm, and is therefore of value when considering comparative speed and fuel costs of the two types.

It must not, however, be considered that this speed will always be maintained, as there is no doubt that a special effort was made by the driver of the steam-wagon owing to the natural desire to show what he could accomplish with his vehicle, and thus the test would develop into a race to demonstrate *possibilities* rather than *probabilities*.

(*To be continued.*)

Correspondence.

The R.I.B.A. Registration and Unification.

To the Editor of THE ARCHITECT.

SIR,—I have read with considerable interest your leading article in a recent issue of THE ARCHITECT concerning the unification and the registration of the architectural profession, and I am inclined to agree with you that it is questionable whether there is anything to be gained by "registration."

Concerning this matter, however, one has some little concern as to who would and who would not be admitted to membership in the event of registration being secured, for there are many professions, such as engineers and surveyors, whose work covers a considerable amount of the same ground as that of an architect.

For instance, the Surveyors' Institution admit to membership, amongst others, two classes of surveyors, the building surveyor and the quantity surveyor, both of whom are required to show considerable proficiency in architectural design and practice; and whilst in London perhaps these two branches of the profession are more or less defined, nevertheless in the provinces one invariably finds a surveyor with either of these qualifications in practice as an "architect and surveyor."

Provincial members of the R.I.B.A., also, invariably practice as "architects and surveyors," though their efforts at the latter are oftimes more or less crude.

What I really should like to know is this: Whether, in the event of registration being secured, members of the Surveyors' Institution in practice as architects and surveyors would be admitted to the membership of the paramount body, or whether, in the event of this being denied them, members of the R.I.B.A. would, upon registration, cease to style themselves as surveyors and also cease to practice as such.

The position of a qualified building surveyor in such an event would be very uncertain, and I consider it most desirable that an early statement should be made by the Council of the R.I.B.A. setting forth whom they *would* admit, in case they are possibly making enemies of many who would otherwise remain their friends.

In a recent issue of a leading South Wales daily paper applications were invited for the appointment of an architect to carry out certain works, the bulk of which, to my mind, was obviously the work of a building and quantity surveyor, since it involved only the duplication of an existing building. Nevertheless, architects being called for, architects naturally applied.

The line of demarcation between the two professions is very undefined, and exactly where the duties of one profession end and the other begins would be well worth the subject of discussion and agreement between the two Institutions.—Yours, &c.,

A. C. HUFFELL, P.A.S.I.

Lloyds Bank Chambers,
Windsor Road, Penarth, Glam.
February 20, 1922.

"Gate of Remembrance."

To the Editor of THE ARCHITECT.

SIR,—In your issue of yesterday your reviewer would appear to have been influenced by Dr. Wilkins's conclusions.

Dr. Wilkins ignores the fact that for sixty years our most eminent antiquaries had been struggling with the problem of locating the missing chapels of Glastonbury Abbey, and had arrived at utterly contradictory ideas. They had no notion of the length and proportions of either. No one could make head or tail of the evidence. After only a year's study of documents I and my friend obtained substantially accurate data which enabled me to disclose the plans. Now it is done it seems simplicity itself. Therefore I claim for the subconscious method of deduction a superiority over the ordinary method, and I hold to the view that the personal subconscious mind is reinforced by some larger content of memory. As to this I do not dogmatise, but I put forward a suggestive theory.

I have offered to meet Dr. Wilkins in public debate, but he has publicly declined. The remedy you suggest, of a representative meeting of the R.I.B.A., is the one of all others that would commend itself to me, and I hereby offer to meet all critics and others interested in the problem, if such a meeting can be arranged for me.

I have now offered Dr. Wilkins a reference of the whole of the controversy to two representative committees, respectively to be composed of archæological, and of psychological, experts, and I await his agreement. Is there anything more that, in your opinion, I can do? The matter is of great importance, and I am willing to entertain any suggestion.—Yours faithfully,

FREDERICK BLIGH BOND.

39 York Terrace,
Regent's Park, N.W. 1.
February 25, 1922.

"The Architect" Fifty Years Ago.

MARCH 2, 1872.

Architects, builders, landlords, and the public are all in duty bound to do their best to help in the work of sanitary reform. But, as we have frequently proved in the columns of this Journal, the architectural profession has shown itself alive to the necessities of the case while the others were asleep. In house-renting and buying the public has studied convenience and cheapness at the expense of healthiness, landlords have grudged essential improvements and repairs and have been eager after their rents, and speculative builders have discarded professional guidance to save a paltry percentage, heedless that the miserable dwellings they construct swell the death rate at a greater percentage. Meanwhile, architects have been aware that tainted water and foul air are the prolific cause of zymotic diseases, and have striven to adapt the latest discoveries of science in their constructions. No man ought to build or let or sell or live in a house which is not thoroughly drained and ventilated and free from noxious exhalations. The tenant, the proprietor, and the builder will always know more of the interior of a dwelling than any local authority, however well constituted and perfect in its working, and unless these three aid the Government its work will be in vain.

The annual dinner of the Royal Institute of British Architects will take place at Prince's Restaurant, on Wednesday, May 24. Members are particularly requested to note the date, and to keep the evening free from other engagements. A circular on the subject is in course of preparation.

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SMOKING ROOM.



ENTRANCE

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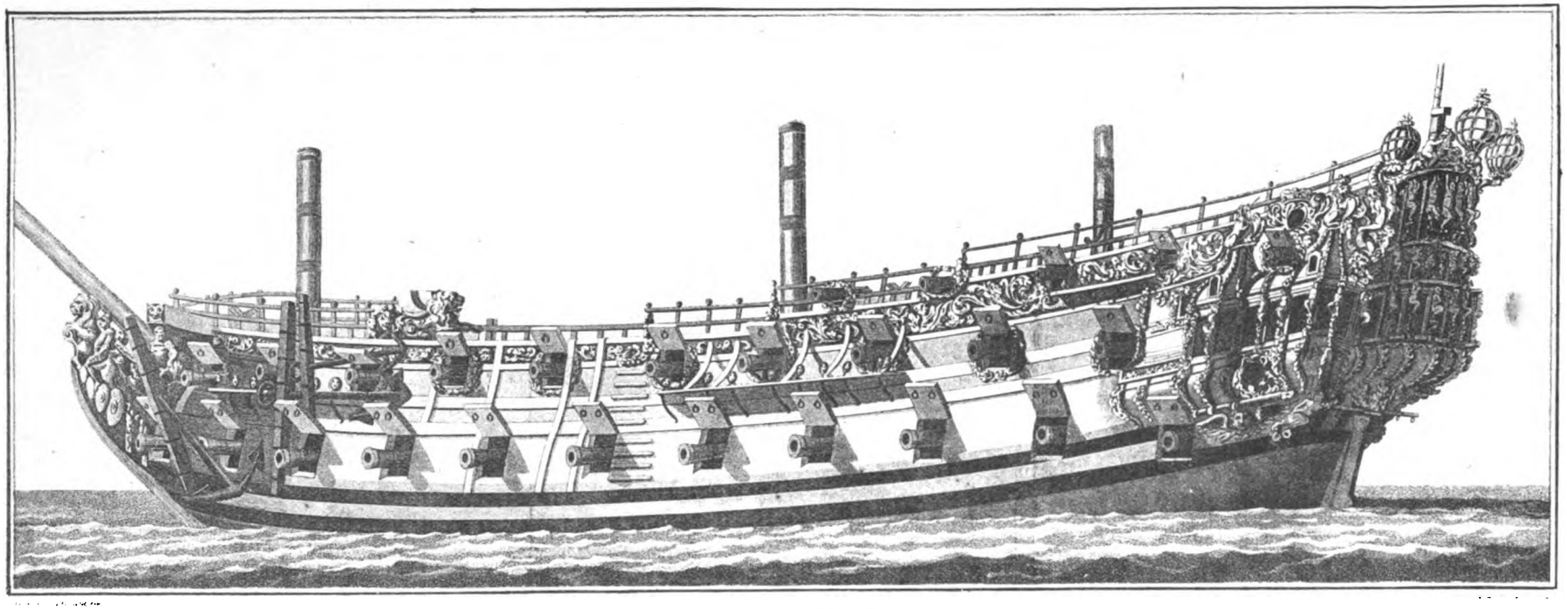
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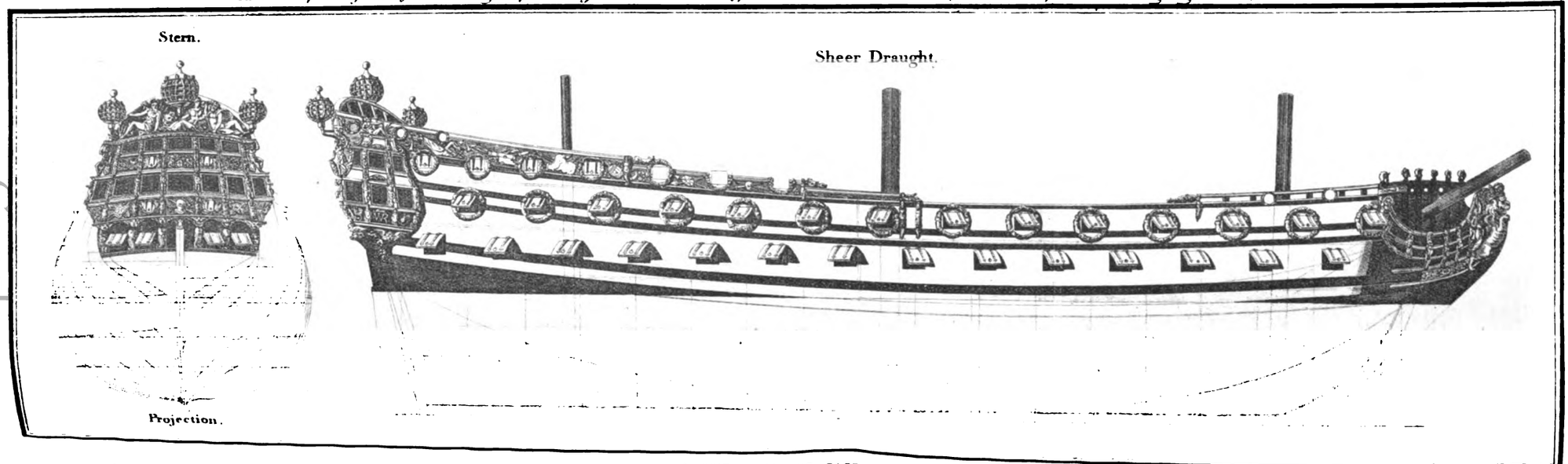
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THE ROYAL PRINCE.

NB. This Ship having undergone a Thorough Repair soon after the Revolution the Cypher WR was introduced on the Quarter in Compliment to the Reigning Monarch.

Vol 2. Page 284



A BRITISH SECOND RATE 1665

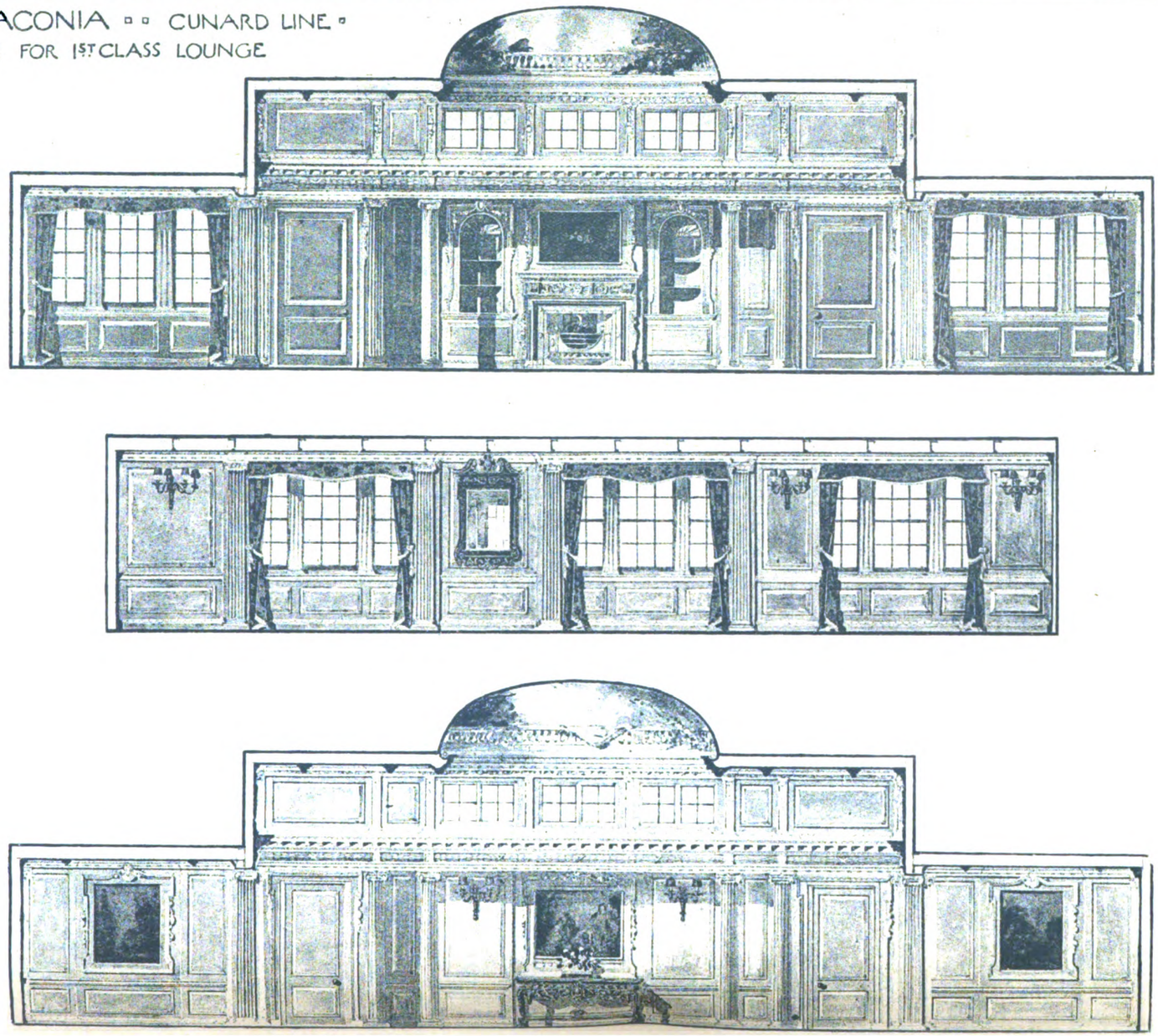
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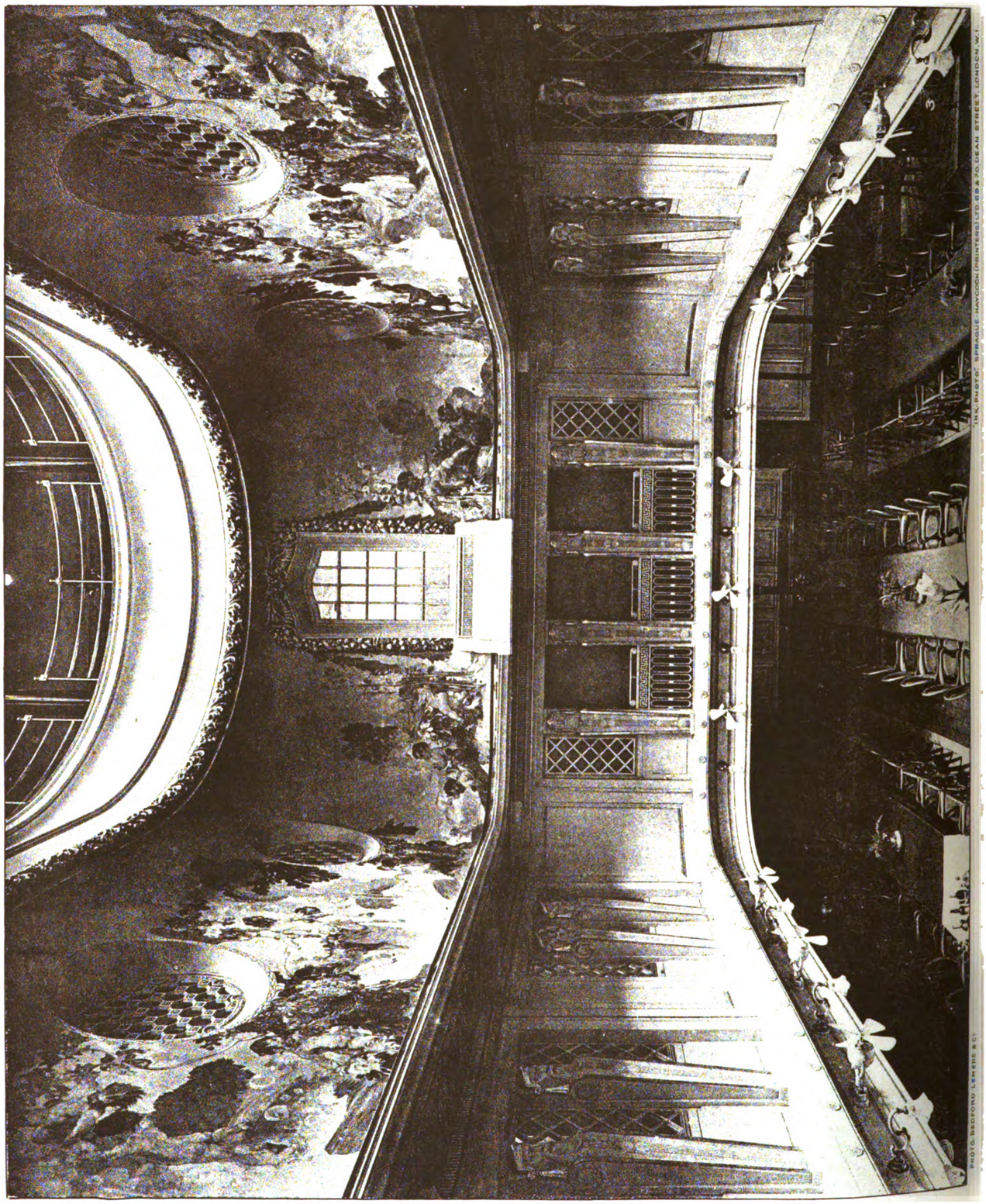
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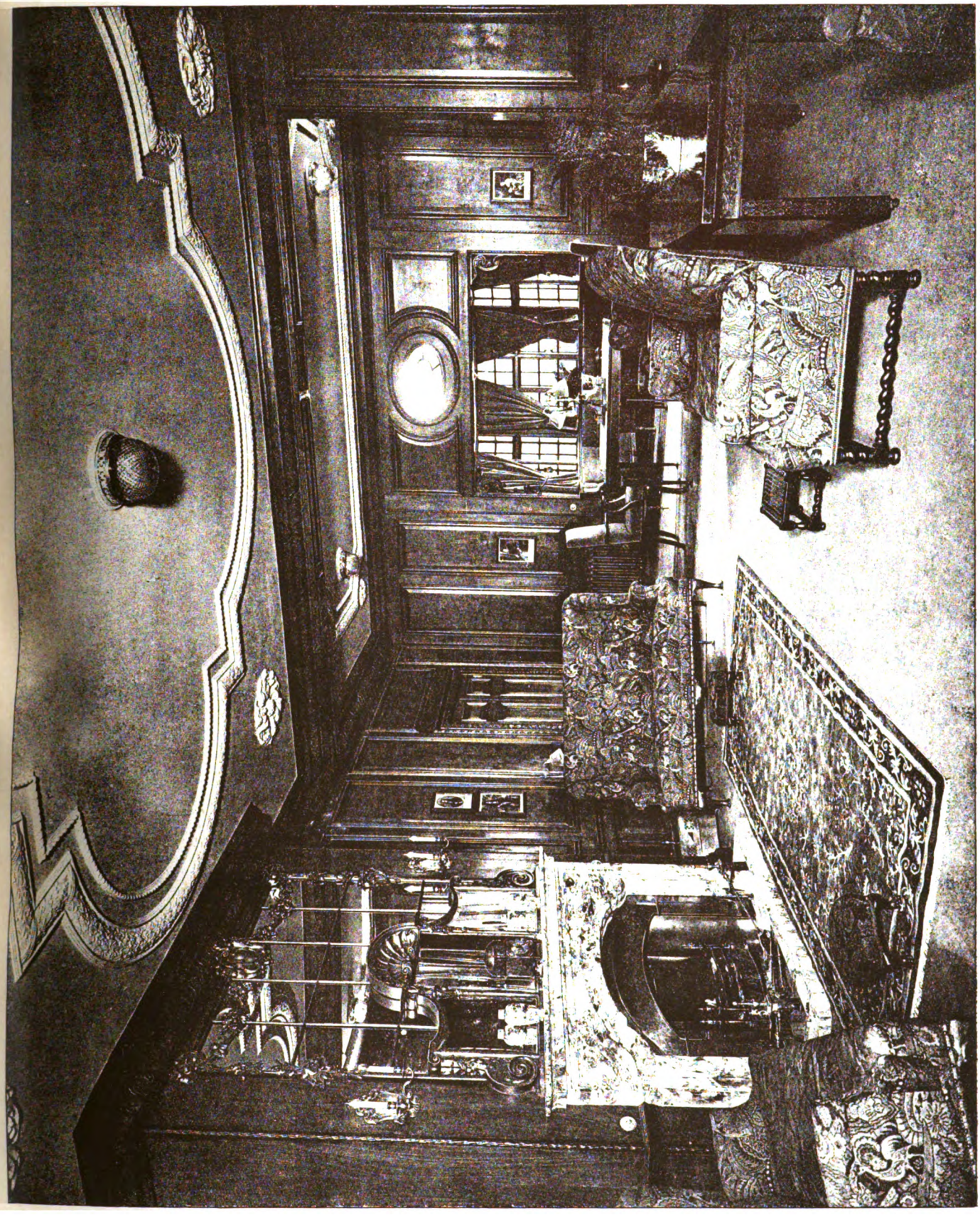
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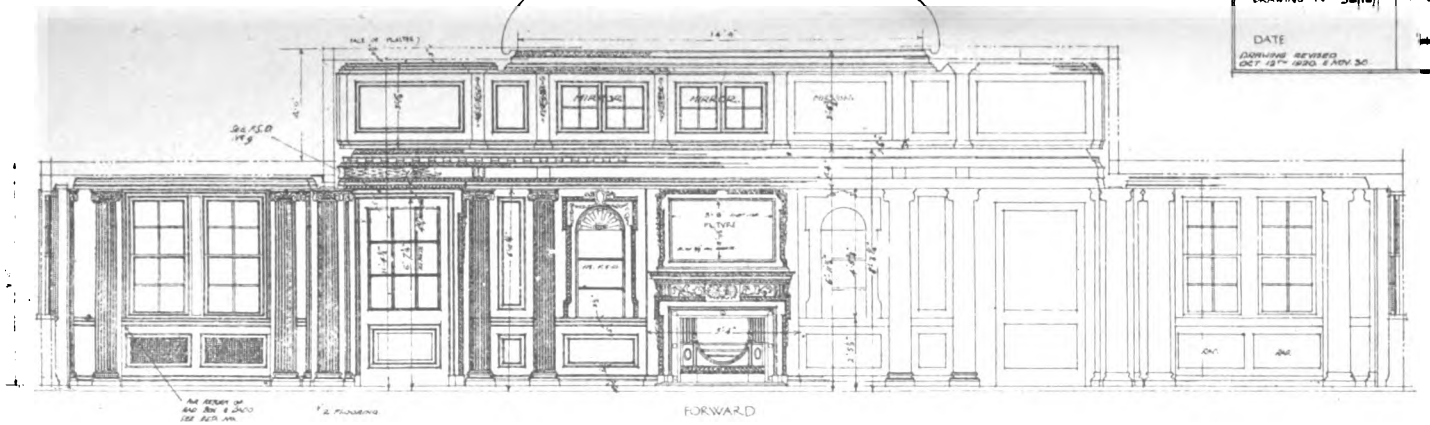
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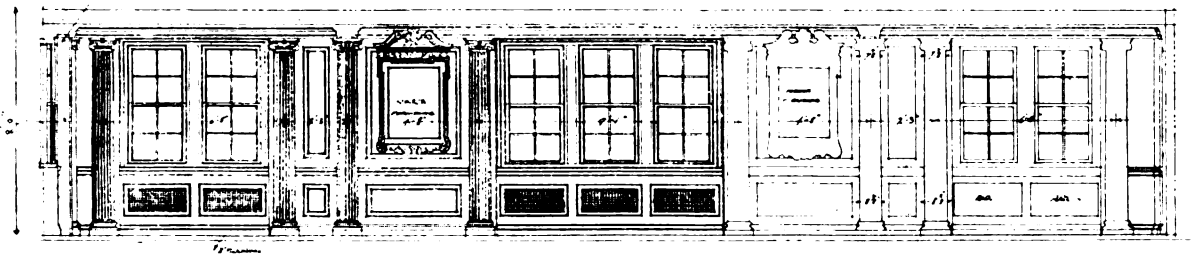
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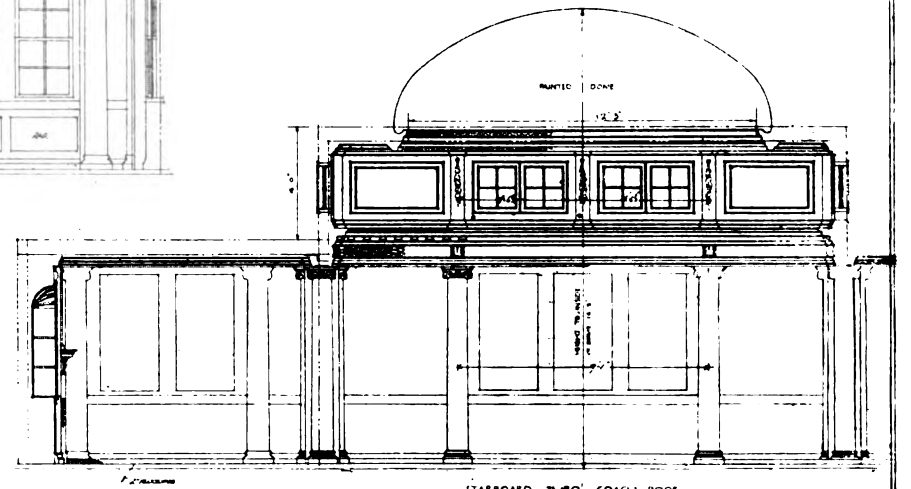
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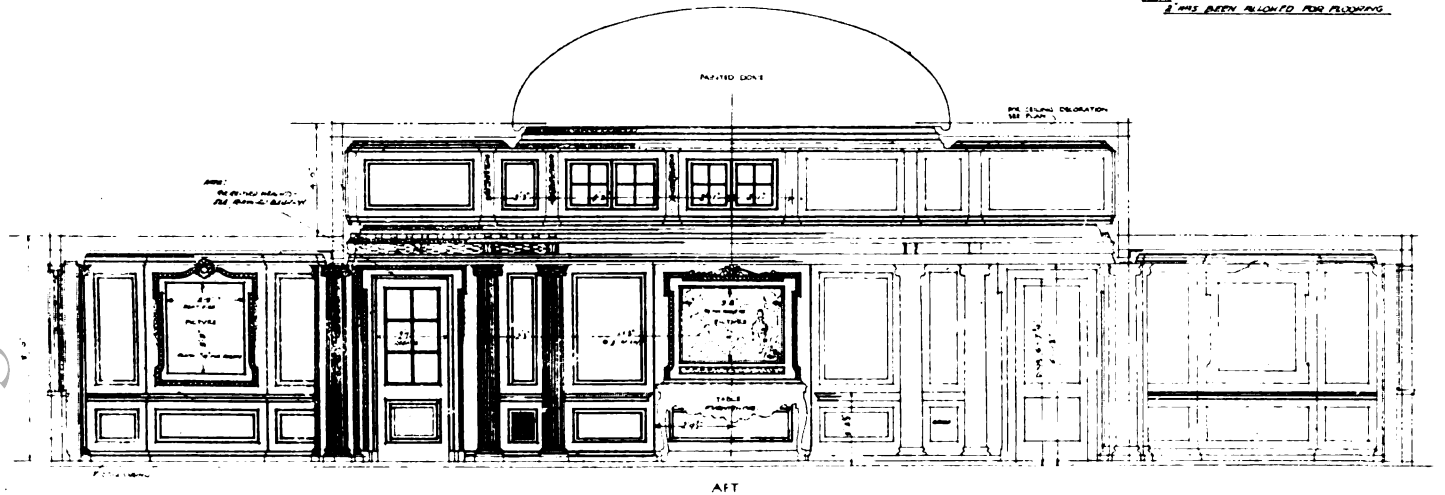


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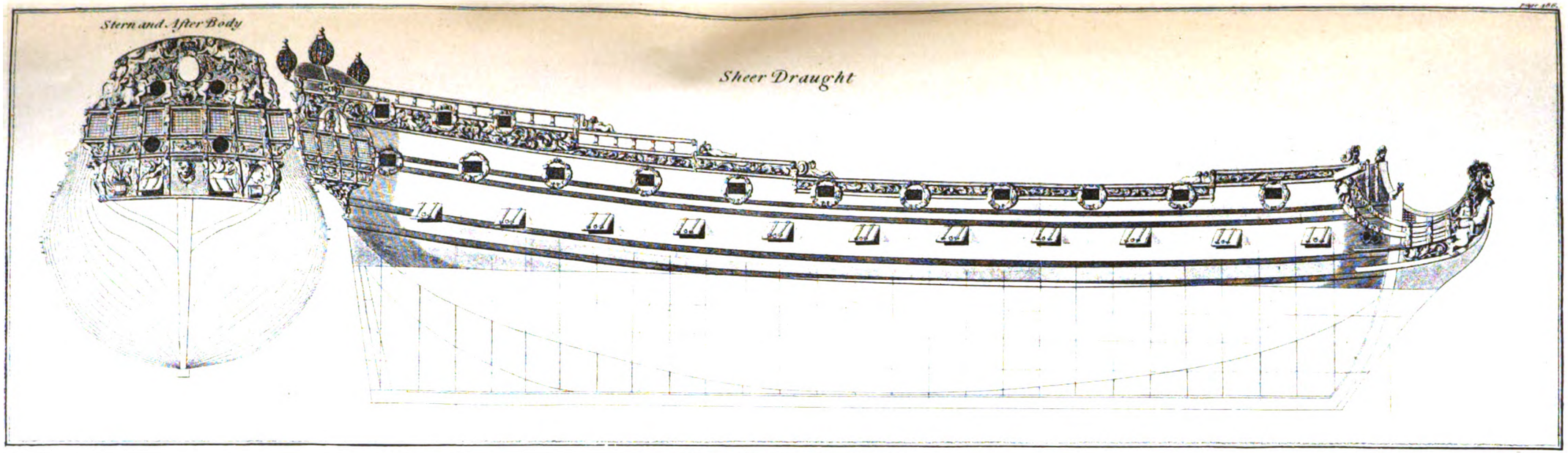
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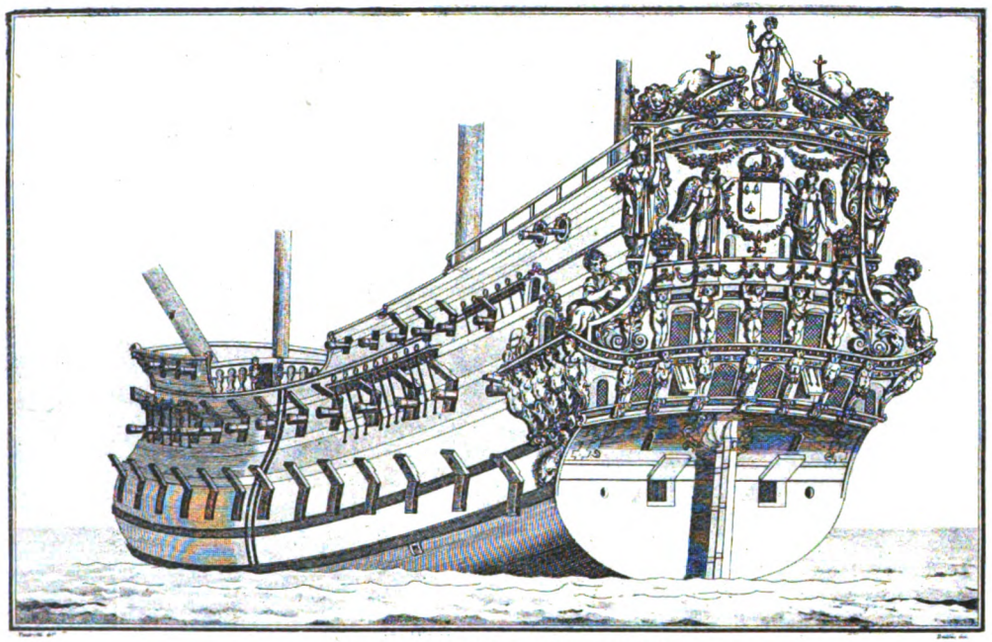
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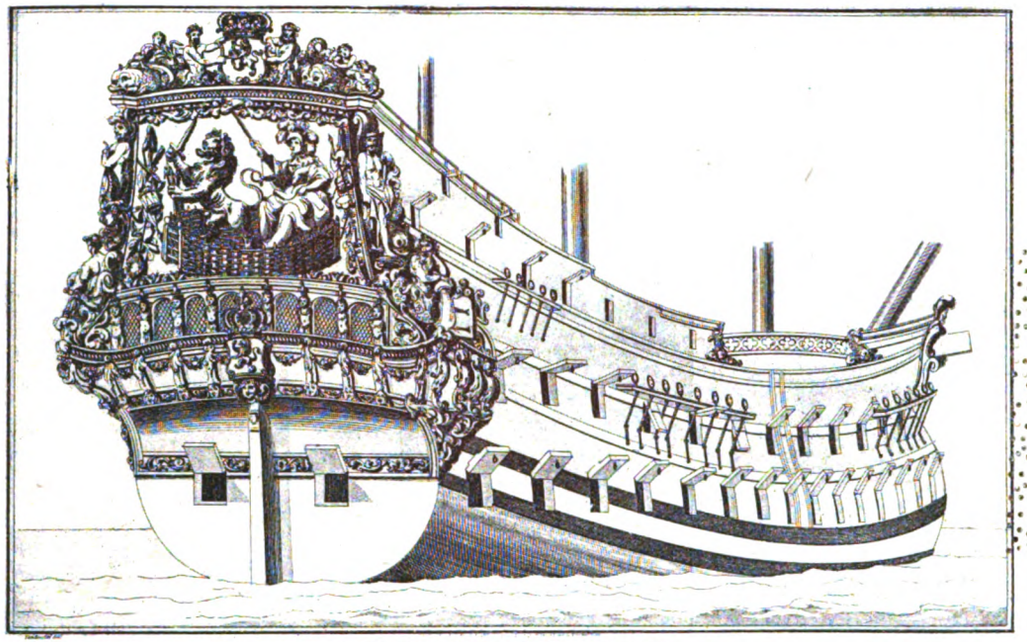
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A BRITISH FOURTH RATE IN 1684.



A FRENCH SECOND RATE, AN.1670.



A DUTCH SECOND RATE, AN.1670.

TYPES OF NAVAL ARCHITECTURE OF THE STUART PERIOD.

FROM A COPY OF CHARNOCK'S HISTORY OF MARINE ARCHITECTURE IN THE POSSESSION OF MESSRS. BATSFORD LTD.

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Northern Architectural Association.

Last week a visit was paid to the Northern Architectural Association at Newcastle by Mr. Paul Waterhouse, as President of the Royal Institute of British Architects. To mark the occasion, the President of the Association, Mr. T. R. Milburn, F.R.I.B.A., invited the members of the Council and other local notabilities to meet Mr. Waterhouse at dinner.

Mr. T. R. Milburn again presided at the general meeting held at the rooms of the Northern Architectural Association in Higham Place, when there was a large attendance of members. Introducing Mr. Waterhouse to the gathering, Mr. Milburn said a visit from the President of the R.I.B.A. marked an epoch in the history of the Northern Association. There had lately been a great deal of talk about the unification of the R.I.B.A. and allied societies, and following upon his predecessor in office (Mr. Simpson), no one had done more to secure that than had Mr. Waterhouse. The allied societies were probably more important than any other section of the profession since, roughly speaking, they represented 3,500 members out of 4,500. Although they were not all members of the R.I.B.A., everything was leading up to that. There had never been a better feeling nor closer touch amongst members of the profession than that which had been brought about by the visits of Mr. Waterhouse to the country members.

Mr. Waterhouse said it was a great pleasure to him to visit the Allied Societies of the Institute, because there was a real brotherly feeling amongst architects. That feeling was especially strong between those in London and those who belonged to allied societies outside of London. He believed that the non-metropolitan people had not always understood how much they were appreciated in London, and London had not always realised what they derived from the friendship of the allied societies. The strength of the Institute lay not in London, but in the vast group of men who represented the interests of architects not only in England, but throughout the world. The Institute had so grown that it had become imperial, with allied societies in every quarter of the British Dominions and in the outlying places of the world, such as Hong Kong. Beyond doubt the Institute was the finest architectural society in Europe. The growth of the organisation brought its responsibilities to those associated with the Institute, and they had to make the idea of empire a solid one.

Perhaps nothing within the purely British sphere of the Institute had shown the solidarity and brotherhood of the corporate body more clearly than the movement towards unification. There had been some misunderstanding about that scheme, and he wished to make it clear that it was not a scheme started by some faddist in London, or that it was fostered by the Council in London. The scheme had its origin amongst the general body of the profession. To his mind, unification was a fine thing, though the scheme might be complex and might involve the sacrifice of some principles. Everybody had a right to express their opinions, but he felt that the critics of the unification scheme had launched their criticisms before the scheme was born. He therefore proposed, with the approval of the Council, to issue a statement upon the whole movement.

Whilst holding definite views upon unification, his duty, as President, would be to see that the prestige of the Institute was not in any way let down; that no class in the Institute was prejudiced beyond the extent demanded by the spirit of sacrifice. Something had to be given up, but it was his duty to see that the something was not excessive.

Turning to the subject of education in so far as architects were affected, the President expressed appreciation of the progress made. It was seldom realised how much was owing to the fathers and grandfathers of the present generation who, under the pupilage system, accepted fees and received free service, but gave a good grounding in the profession. He did not think any scholastic course would take the place of office experience, but the profession must be grateful for the fact that the pupilage system was terminated. Education amongst architects in this country had been a tremendous binding force, and men in practice had found pleasure and delight in bringing forward the younger men of the profession. He knew and appreciated how much had been done in Newcastle in that respect; and he congratulated the Northern Association on the recent success and official recognition of the architectural school at Armstrong College. By reason of the fact that the Institute had the withholding or granting of recognition of schools of architecture, it controlled its own kingdom.

The President, in conclusion, praised the general architecture of Newcastle, and said it was on a scale of magnificence hardly to be equalled in other towns in Great Britain. It was up to the younger members of the profession to maintain Newcastle's high standard.

Mr. W. T. Jones, past president of the Northern Association, proposed a vote of thanks to Mr. Waterhouse, and this was seconded by Mr. A. B. Plummer, senior past president, and supported by Mr. R. Burns Dick, Mr. L. W. Taylor, Mr. G. E. Charlewood and Mr. G. T. Brown, all of whom were agreed as to the need for unity in the profession.

The vote of thanks was carried with cordiality, Mr. Waterhouse making a brief response.

Birmingham Architectural Association.

The ninth general meeting of the Birmingham Architectural Association was held at the Birmingham School of Art on Friday, February 24. Mr. H. T. Buckland, F.R.I.B.A., took the chair, and Mr. H. Worthington, M.A., A.R.I.B.A., gave an illustrated lecture on "Michele San Michele of Verona."

After a few introductory remarks Mr. Worthington spoke of the danger of blind enthusiasm for a past style, unless tempered by critical historical study, and said that the best way to study a period is to specialise on a man.

San Michele was a typical child of his age, with a passion for Roman antiquity, yet he faced the needs of his day, and in his fortifications, adapted the needs of modern military engineering to meet the developments of modern artillery. He recast the planning of town and country houses to meet a growing sense of security in city life. One of the last of the Renaissance giants he sums up the period of culmination, and shows traces of the coming decadence.

In character San Michele had the enlarged outlook of one who constantly associated with great men. He was a loyal citizen, a staunch servant of the State, and a devoted friend. He practised in the same manner as modern architects, and had his share of awkward and exasperating clients.

Mr. Worthington showed many slides illustrating the walls and gates around Verona, the fortifications at Parma and Piacenza, and the Fort of St. Andrea, carried out by San Michele, and concluded with a description of his characteristics.

Mr. E. F. Reynolds, F.R.I.B.A., proposed a vote of thanks to the lecturer, which was seconded by Mr. B. J. Fletcher, and carried unanimously.

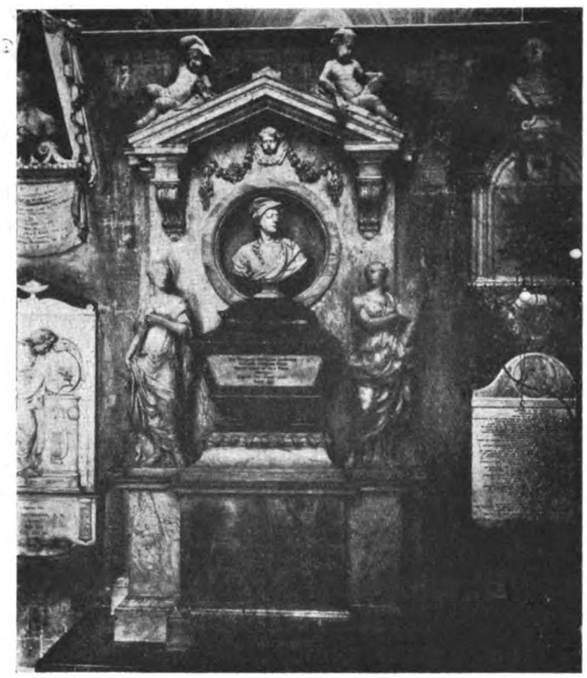
A special committee of the Surveyors' Institution has been set up to consider the position which will arise on Section 46 of the Housing, Town Planning, &c., Act, 1919, coming into operation at the end of the present year. Under that section all boroughs and urban districts of 20,000 inhabitants and upwards are required to prepare and submit town-planning schemes to the Ministry of Health. Under Section 45 the Ministry has power to permit the development of estates pending the preparation and approval of schemes, and in order to prevent stoppage of development and the sterilisation of large areas of land over considerable periods the committee have been asked to consider how these powers could best be exercised.

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Studies of the English Sculptors from Pierce to Chantrey.

X.—John Michael Rysbrack (1693*-1770).

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MONUMENT TO MATHEW PRIOR (Bust by Coysevox), WESTMINSTER ABBEY. By Rysbrack.

The facts of Rysbrack's life are briefly given by Walpole, Charles Rogers, a personal friend of the sculptor and author of the well-known "Collection of Prints in Imitation of Drawings," and J. T. Smith, and their accounts may be summarised here before we draw upon the important new material furnished by the sealed notebooks and other MSS. of Vertue's already alluded to in the first article upon Scheemaker.

John Michael Rysbrack, "the best sculptor," accord- to Walpole, "that has appeared in these islands since Le Sœur," was born at Antwerp on June 24, 1693, according to Rogers. His father was a landscape painter and etcher who had been in England, but left it with Largillière at the Revolution and went to Paris, where he married. He then returned to the Low Countries, and after living at Brussels and Antwerp died at the latter place in 1726 at the age of eighty. Michael his son, after studying at Antwerp under the sculptors Michael Van der Vorst and Theodore Balant, and receiving much help and advice from his father, came to England in 1720, and began by modelling small figures in clay and working for James Gibbs. He was fortunate enough to obtain the patronage of Lord Nottingham, who sat to him for his bust, the success of which led to many further commissions, and justified him in setting up for himself in Vere Street, where he spent his life, dying there on Jan. 8th, 1770. He lies in Marylebone Churchyard, not far from the site of the great sculptor's yard of which he was the head, and which turned out not monuments only but marble tables, mantelpieces and other commercial products now associated with the stonemason, but then and long afterwards produced in the yards of the greatest sculptors and their pupils. Rogers represents Rysbrack as a man of gentle and generous nature who impoverished himself by helping his relations, and was sincerely religious in days when religion was rare among artists. Rysbrack was also an excellent draughtsman, and executed an immense number of drawings "in the true taste of the great Italian masters" which, according to Smith, were still to be found in the portfolios of collectors as late as 1829. These facts, and the extracts from contemporary newspapers from March 4, 1731, onwards, given by J. T. Smith, practically exhaust what has hitherto been known of the sculptor's life save that he had two brothers, both of them painters of some merit.

Now for Vertue's account of the family. "Octobr 1748. Death of Peter Andreas Rysbrack painter born in Paris [Antwerp originally, but Vertue crossed this out and substituted Paris] his father married there and livd some years. This son Peter born at Paris about 1690.

1690
1748

58 abt.

eldest brother to the excellent statuary here Mich. Rysbrack, brought up there under their Father an excellent Landskip painter—and both came to England about . . . Peter went over to Antwerp staid about 3 years came back to London." Other particulars of Peter follow, but none relevant to the greater brother, who had, however, attracted the attention and won the friendship of Vertue many years earlier. Before we quote his notes on the sculptor, however, it may be well to say that Vertue spells his name in various ways, Rysbrach, Rysbracht, Rysbrake, and Rysbrack; Walpole, and consequently our works of reference, adopted the first, but as in the case of Scheemaker, we shall adopt the form used by the sculptor in his own Sale Catalogues, issued at the end of his life, and refer to him as Rysbrack.† Now for the earliest entry.

"Octobr. 1720. came into England Michael Rysbracht Statuary (son of—Rysbracht of Antwerp an excellent Landskip painter been in England . . . [in margin] about 26 years, his Moddels in Clay are very excellent and shows him to be a great Master tho' young, he is of Antwerp and there and at Brussells has liv'd till he came to England, he was recommended to Mr. Gibbs Architect." In another notebook we find an interesting passage which shows the intimacy which quickly sprang up between the sculptor and the antiquary. "Amongst the Ingenious Artists now living I much admire Mr Rysbrach Statuary of Antwerp, whose moddels in clay are admirable. Besides those done for Monuments, he has made from the life the portraits of several persons extreamly like, that of the Lord Nottingham, Sir T. Hewitt, Surveyor, Mr. Gibbs Architect, he who from the time of his first coming to England almost has much imploy'd him, but has always done it for his own advantage not for Encouragement, that the poor man hath oppend his mind to me and told me of his extravagant exactions on his labour that he could not possible live had not other business come in to help him of more proffit, an instance of this is now in the Monument of Mr Prior [in Poets' Corner; the bust is by Coysevox] which he is now about. The statues at length as big as the life representing poesi [and History] he will give him no more than 35 pounds for each Statue to be cut in Marble when others have above a hundred pounds. and Mr Gibbs is to have of My Lord Harley upwards of a hundred pounds for each of the Statues. Many other things of this kind he has done by him.

"'Tis an unreasonable gripeing Usage for a most Ingenuous artist in his way for far more of merit than Gibbs can ever be." Vertue's testimony is the more reliable than 23 pages further on we find a considered eulogy of St. Martin's-in-the-Fields; but he evidently

* If this date is correct—and Vertue's note that he arrived in England in 1720 about the age of 26 suggests that it is—he became "Master" of the Guild of St. Luke at Antwerp at the incredibly early age of 21.

† His friend Rogers makes the interesting point that Rysbrack almost alone among the sculptors of his century never went to Italy; that he was well acquainted with ancient sculpture we shall, however, see later on.

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disliked Gibbs—hence doubtless Walpole's strictures on him—and his dislike did not lessen as years went on.

Nor was Gibbs the only man for whom Rysbrack worked without getting the credit, for under date April 1731 Vertue again writes: "Sett up in Westminster Abbey the monument of Sr Isaac Newton, a noble and Elegant work of Mr Michael Rysbrack, and much to his Reputation tho the design and drawing of it on paper was poor enough,‡ yet for that only Mr Kent is honoured with his name on it [Pictor et Architect invent] which if it had been delivered to any other Sculptor besides Rysbrack, he might have been glad to have his name omitted." The work is in fact of singular beauty, and one can only regret that Pope's noble couplet originally intended for it was not used:

"Nature, and Nature's laws, lay hid in night;
God said, Let Newton be, and all was light."

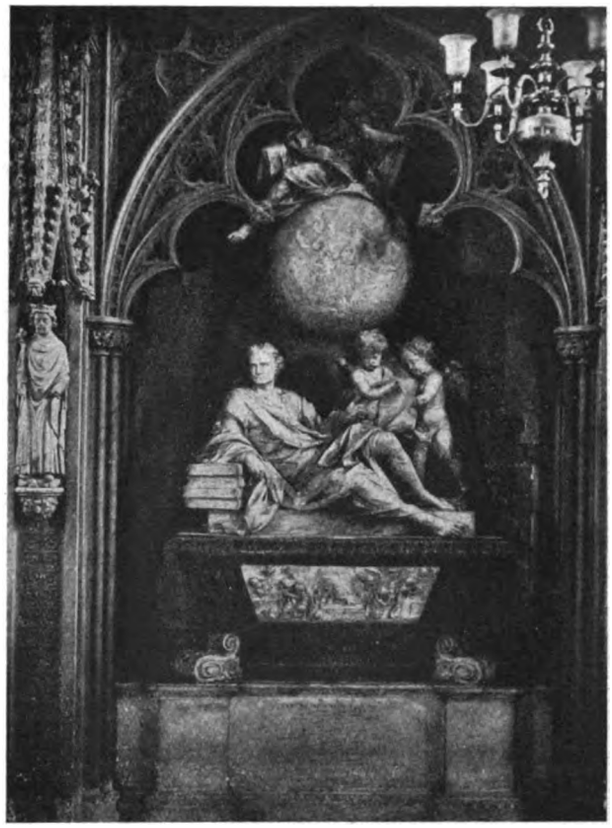
We have placed these passages together to show the treatment to which a young sculptor was liable by those for whom he worked, and it is more than probable that other works bearing Gibbs's name are from the chisel of Rysbrack. An earlier passage, dated August 1728 proves that the "other business" of which Vertue speaks was of considerable importance. Not only did he do an excellent bust of Sir Robert Walpole for Houghton, which was reproduced on a medal by Natter, but "The King sat to Mr. Jervaise for a picture for the Guildhall: Mr. Alderman Barber [Swift's friend and printer] procur'd this favour for him, as also the Statue of the King to be done by Mr. Rysbrach who has finished a Model of the King's face in Wax, only at opportunities of seeing the King, that is thought very like." Rysbrack therefore, when he had been barely eight years in England, was already honoured with an important commission; and the increase of his fame may be still better seen from a passage in the sealed notebook dated 1732, which provides an incredibly long list of works, prefaced by the following note:

"1732.—Mr. Michael Rysbrake Statuary at present has great employment fr. Quality & Gentry—had in hand severell great Works of Monuments and Bass-relieves—statues, Busts, &c.

"When he first came to England imployd his time in moddeling small figures to show his skill in the plastic art—and so has gained acquaintance, friends and business. He was first imployd by the late Ld Nottingham to model his picture from the life, which he did to a great degree of likeness and in an excellent stile. From that time to this he had modelld from the life many noblemen, Ladies Learned men and others a List of them as folows. from himself and I have seen the Models when done.

Earl of Nottingham	— in marble after it (i.e. Vertue saw the model, and knew of the copy)
Mr. J. Gibbs arch.	
Mr J. Gibbs a profil dito. [*sic*] [one bust of Gibbs was at Strawberry Hill, a second is in the Radcliffe Library]	— dito. [*sic*]
Sr Tho. Hewet Surveyor	— in Marble
his Lady	— in Marble
Mr Cheselden surgeon	— ?
Young Lady Mary Henly	— in Marble
ditto. a profil	—
Col[l] James Pelham	— in Marble
Dr Finch	— in Marble
Mr Alex. Pope	— in Marble
Mr. Kent Painter	—
Mr. Booth Player	—
Mr. Booth	—
Capt. Aubin	— a Marble
Ld. Macclesfield	—
Mr. Milner	— a Marble
K. George I (*note*. "The King did not actually sit")	— a Marble
Sr. Rob[t] Walpole [Probably that afterwards at Houghton from which Natter made a medal]	— a Marble

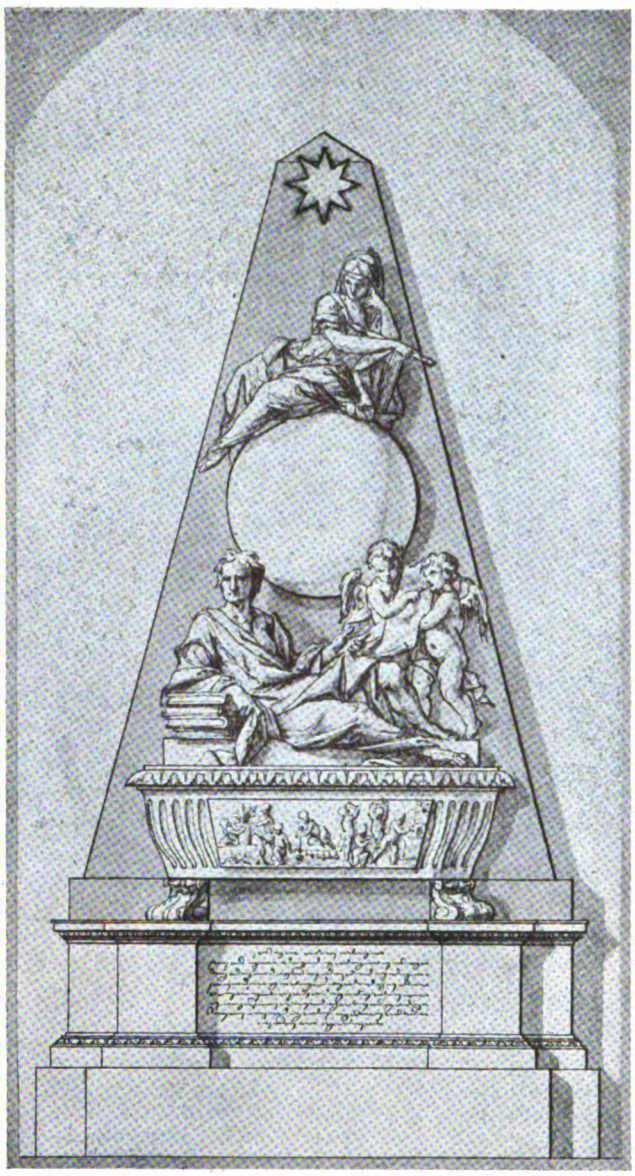
‡ Rysbrack must have redrawn the original design, as there is a splendid drawing of it signed by him in the Print Room of the British Museum, with only a slight variation in the bas-relief on the sarcophagus.



MONUMENT TO SIR ISAAC NEWTON (after KENT's Design), WESTMINSTER ABBEY. By RYSBRACK.

Mrs Judith Sambroke Mrs Elis. Sambroke } sisters	— a Marble
Mr. Joseph Gouper (Goupy)	
Mr. P. Tillemann Painter	
Honble Mr. . .Bridgman	— a Marble
Mr. Mullen	— a Marble
Mr. Halsay	
Dutch[s] Marlbrough	— Marble
Duke of Kent	— Marble
K George 2[d]	— in Wax model—Statue Royal Exchange
Mrs Nash	— Marble
Dutches of Argyle	— Marble
Mr Holland	— Herald painter
Lord Bolinbroke	
Mr Wootton Painter	
Mr Ripley	
Mr Mason	
Mr Kent	
Mr Dahl	
Sir Isaac Newton done immediately after his death from pictures and draughtes	
B Johnson	— Bust
Inigo Jones	—
Palladio	—
Butler ye Poet	—
Milton excellent	
Duk. Malbro [*sic*] [perhaps the bust now in the Bodleian]	
Oliver Cromwell	
Michael Angelo	
Black prince	
Queen Caroline	
Spenser ye poet	
Ld Orkney a Moddel	
Mrs Davenport	
Mr Tom Straughan Surveyor of Bristol	
Rev Mr Hawkins	
Dr Frend [*sic*] Divine	
Sir Jacob Bouverry	
Mr William Thomas Steward to the Earl of Oxford	
Mr Morett	
The KING George 2nd from the life—twice sat to him	
From the life—	
Duke of Marlbro	
Thomas Walker Esqr	
a son of Mrs Bernard	
Counsellor Murray	
Mr Rysbrake himself	
Modelld from 1744—.	
Dr Bernard Bp [of] Rapho	
Earl of Winchelsea	
Ld Westmorland at Althorpe	
Many old heads in pictures	
King Philip & Queen Mary (at long?)	
Dr Stukeley	

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DRAWING OF THE MONUMENT OF SIR ISAAC NEWTON.
By Rysbrack, British Museum.

And be it remembered that Rysbrack had still thirty-eight years of busy activity before him.

In the same year 1732 Vertue notes that of the busts in the Temple of British Worthies at Stowe seven (as we saw in the chapter on Scheemaker were the work of Rysbrack, as were also the statues in the Saxon Temple there (notebook B4 representing "the 7 deities who gave Name to the dayes of the week cut in stone," the statues of George II and Queen Caroline, and the Figure on the Cobham Pillar. Other works of the same class were executed for the Queen, on whom Vertue has a grandiloquent passage ending with the remark that she "hath taken Statuary into her Protection and made her Retirement [i.e., her house at Richmond] illustrious by those monuments of Genius which she hath chosen to grace it.

"Thus Bacon and Boyle, Sir Isaac Newton, and Dr. Clarke, Locke and Woolaston employ the hand of Rysbrack, and are placed in her Majesties Grotto in Richmond to adorn it." In this connection we must not omit Swift's two epigrams on this "Retirement," the solemn one, written perhaps for the Queen herself, beginning:

"With honour thus by Caroline placed,
How are these venerable bustos graced!"

and the other, evidently expressing his genuine feelings on the matter:

"Louis the living learned fed
And raised the scientific head;
Our frugal queen, to save her meat,
Exalts the heads that cannot eat."

But the royal patronage must have helped Rysbrack, and we are not surprised that Vertue notes further on "Mr. Rysbrake Statuary has in so many works done, shown his great skill in Marble monuments, &c. but" he adds, "his superior meritt to other Sculptors is very aparent in his Modells of portraits from the Life not equallizing [*sic*] for Truth of Likeness and property [*sic*] of Ornaments or headdress &c as he has done more emminent and noble persons from the Life his great merrit has recommended him to the KING who sat to him at Kensington twice to have his picture modelled in Clay—the likeness much approved and with a good air, also a Moddel of the Queen vastly like tho' not done from the Life." Of Rysbrack's personal acquaintance with the Queen we have an interesting glimpse dated June 10 1734. "The Queen made a visit to Mr. Rysbrake to see his works and especially the equestrian statue of K. William in brass that is to be sett up in Bristol. [in Queen's Square] also the Busts of marble of Kings and Queens done lately by him to adorn some palace. Upon her seeing the cast of K. James I face she turned about and said, 'fi, il me semble a une boureau [*sic*], I won't have that done,' she said. One may guess she forgot from whence her succession came."

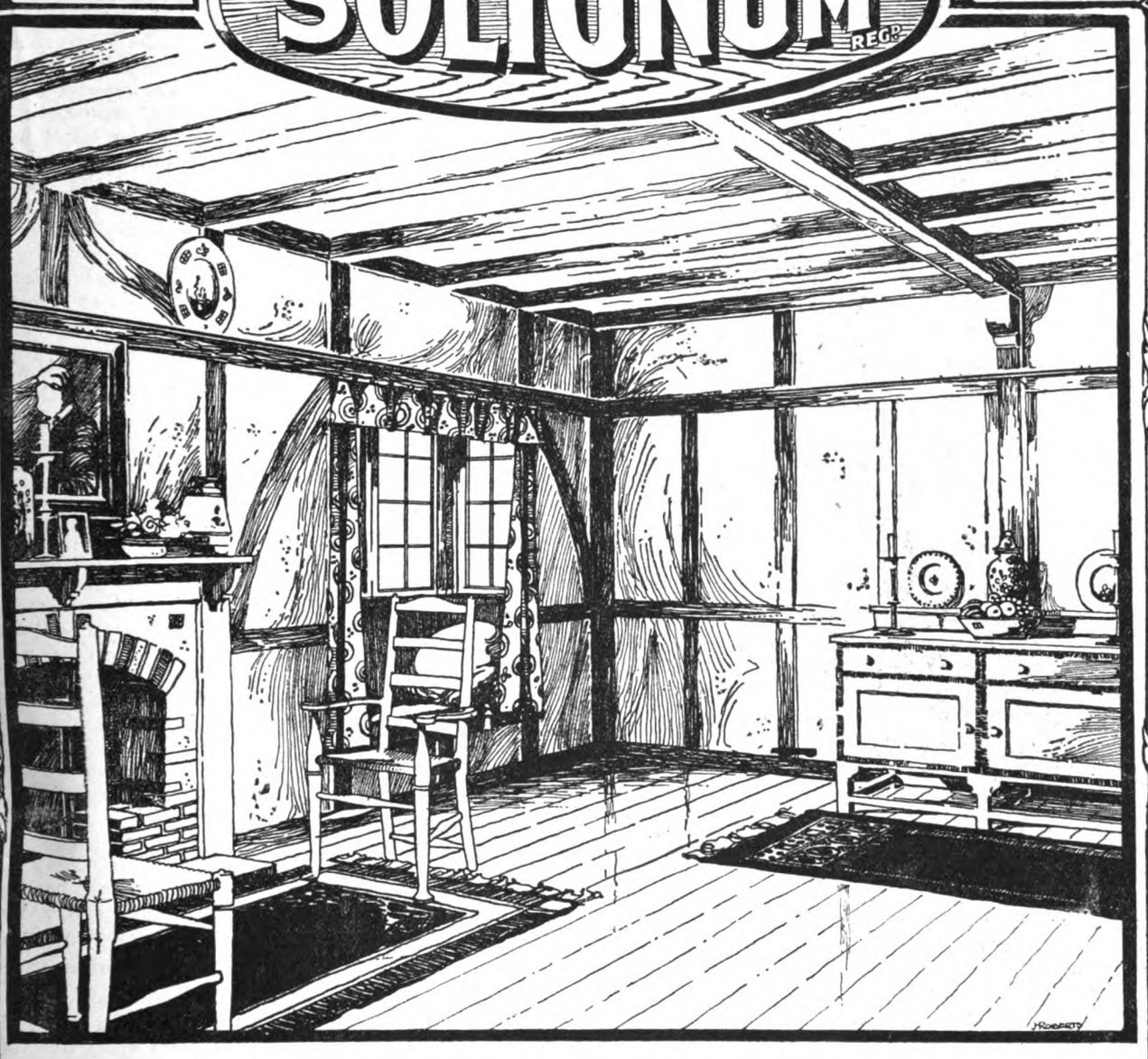
This equestrian statue of William III. for which Rysbrack received £1,800 created a great sensation. A good account of the transaction may be read in Walpole, condensed from Vertue, but further details may be of interest. "The great Model by Mr. Rysbrake," Vertue writes in the sealed notebook, "begun 1 May 1733 and finisht in Clay horse and man, and cast in plaster of Paris and sett up in his workhouse on Aug. 1 much approved on and by the Criticks skilfull in that art thought to be the best statue ever made in England." "It is a felicity we have reason to be proud of," he continues, referring to this statue and to the Duke's monument at Blenheim, "that the two greatest Men whom the Modern Times have known, of the English armies led by King William the Third and the Duke of Marlborough have lately had a Rysbrack to give them life and likeness in Bronze and Marble." Vertue elsewhere notes that the William III. was thought such a success when it was finished in 1735," it was expected that the Bristolians [would have] made him a voluntary present over and above the contract, but no such thing was done." On June 10, 1734, as we have seen, Queen Caroline visited his



STATUE OF WILLIAM III., QUEEN SQUARE, BRISTOL
By Rysbrack.

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STATUETTE OF VANDYCK. By RYSBRACK, in the Soane Museum.

studio to see the work in progress. It was cast in three pieces, the horse and the King's legs, the King's body down to the thighs, and the horse's tail, and was described in the "True Briton," no. 195, as "a Work of Genius." It is one of the best equestrian statues in existence, as our photograph will show, even though one may suspect that "Mr. Tom Straughan, Surveyor of Bristol," who had sat to Rysbrack, may have had something to do with the selection of the sculptor.

The Duke of Marlborough's portrait has already been noticed; not so the extremely fine statues and marble bas-reliefs done for his monument in the chapel at Blenheim, which Vertue notes, without mentioning his statue of Queen Anne in the same place, in a list of works under date 1743.

"Mr. Rysbrake sculptor statuary§ amongst the many great and famous works done by him in England.

"The Monument of the Duke of Marlbro set up at Blenheim in the Chappel consisting of many statues—[figures of the Duke and Duchess standing upon a sarcophagus supported by figures of Fame and History and below a bas-relief representing the surrender of Maréchal Tallard, the admirably spirited model for which, here reproduced, is in the Soane Museum]—also that of Lord Foley—are standing monuments to his Fame being seaven statues disposed in a most excellent Monument and put up . . . in Barkshire he has lately since made three moddels in Clay, being the representation of 3 most excellent artists, Rubens, Vandyke and Fiamingo Quesnoy all three his country men. Three Modells, for the invention being standing, the gracefullness of the actions the dispositions of their habit attitude and natural likeness is most excellent. Query: if any other artist living, could do better, and more masterly execute them, these are now the effects of leisure and study, being provided with the great and unproportioned exultation [*sic*] of that statue of Shakespear erected in Westminster Abbey—done by Scheemaker—and so much spoke of in all conversations and in publick print which has effectually established his credit and reputation—and at the same time obliterated in some degree, that of Rysbrackes in so much that he feels the effect in the decline of Business. this provokes him to say, that he believes wherever he goes in what part of the world so ever, he shall be able to live; if here, The run of the whole posse or multitude follow the outcry without distinction or judgment of the degrees of merrir (superior certainly) allowed by all true and impartial Judges of art. but! Fate or Fortune will play those uncertain games, to baffle the Understanding of mankind who lays down rules for providence—Both are certainly ingenious men. Rysbrake has long been at the top of fortune where [? while] here—whilest the other has been labouring below, and broken with great fatigue || to rise. at length by this taking object—Shakespear the public favourite of all english playwriters—tossd his sculptor above on the summit of the wheel and so became the admiration of the publick,¶ immediately brought him into considerable employments of proffits and honour and joyned to that same subtility nature had given to Scheemaker in the management of his affairs boldness, and also all ways underworking the others prices added to his success.

"as Mr. Rysbrake for a marble Bust, moddel and carving, his lowest price was 35 guineas, the other would and dos do it for near ten guineas less—but what is the difference everyone can distinguish that in point of skill, likeness &c. there is difference sufficient to those who know *better*.

"it is, it was, and will be.

"that reputation is a balance so nice in scale—that in art is all in all. so clearly distinguish the difference or variation, only suppose a pair of empty scales suspending in equilibrium—

"if the smallest breath of Air is prest out one part or side of the ballance more than the other, that descends, just so much as the other rises. So vice versa—which is the truest simbol of the **hazard danger** of rivals—in Arts, or ill-natured envy."

We have given this curious and incoherent passage in full because it throws much light both upon Rysbrack and Scheemaker. The first was obviously the greater sculptor, but Vertue knew that his rival had worked hard and long for public recognition and deserved the fame his Shakespeare had brought him, though he obtained at least part of his popularity by underselling his fellows.

(To be continued.)

§ There is evidently some distinction of usage in Vertue's mind. Was a Sculptor a maker of busts, a Statuary a maker of larger monuments? It would be interesting to find out.

|| Note in margin: "with the great labour, polish and finishing of his works gains upon the minds of most people."

¶ Note in margin: "Somehow providence rewards honest endeavours."

For preceding articles of this series see:—Introductory Article, July 1; Nicholas Stone (1587-1647), July 8; Edward Pierce (ob. 1698), Sept. 2; Caius Gabriel Cibber (1630-1700), Sept. 16; Grinling Gibbons (1648-1721), Sept. 30; John Bushnell (d. 1701), Oct. 7; Francis Bird (1667-1731), Oct. 21; Peter Scheemaker (1690-1771?), Dec. 9; Peter Scheemaker (cont.), Feb. 10.

Besides the presence of Sir Aston Webb (with Lady Webb) as President of the R.A., architecture was further honoured by the inclusion among the invited guests in the Abbey on Tuesday last of Mr. Paul Waterhouse, P.R.I.B.A., and Mrs. Waterhouse.

The Board of Architectural Education announce an alteration in probationers' qualifications for the R.I.B.A. Applicants desirous of qualifying for registration as probationers must in future produce drawings showing an elementary knowledge of freehand drawing, instead of examples of geometrical, perspective and freehand drawing.

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Rate-Aided Private Builders?

Reporting upon the decision of the Government to limit the grant of subsidy to private builders for houses i respect of which they were committed before July 14, 1921, and the possibility of stimulating private housing schemes by "some equitable adjustment of the rateable value," the Housing Committee of the London County Council this week report that exemption from rates would, in effect, be a subsidy from the rates, instead of from the taxes. Such a subsidy would also be an addition to the price or the rent which a builder could obtain. Both should, therefore, have a similar effect in encouraging building, though the more direct and tangible subsidy would probably have a more certain result. Since May 1920 the State subsidy had been £230 to £260 per house, according to floor space. Exemption of new houses of a similar class from rates for a period of ten years would, on the basis of the present assessment and rates, be equivalent to a subsidy of nearly £200 per house. A scheme of rate exemption of new houses erected by private builders to be effective would have to be compulsory on rating authorities generally. In London there was no land available for new houses in most of the boroughs, and exemption would throw an undue burden on the few boroughs in which new houses could be provided. The inequalities would be greater still between London and districts outside.

The Committee conclude with the observation that a direct subsidy is preferable to an exemption from rates, which would merely be a subsidy in a disguised form.

Housing News.

The Cardiff City Council have decided to apply to the Ministry of Health for permission to build 250 additional houses.

Annfield Plain Urban District Council has received sanction for the erection of twenty-nine more houses in connection with the Catchgate housing scheme. The work would be put in hand as quickly as possible.

Dundee Corporation have received permission from the Scottish Board of Health to build 200 tenement houses. Hitherto the Board have been adamant in their refusal to depart from the flatted type of subsidised dwellings, and Dundee is the first municipality to succeed in effecting a change in the official view.

Torquay Housing Committee has received permission from the Ministry of Health to build forty-eight additional houses. The committee recommend the acceptance of a tender put in by Messrs. Smith, of Bristol, to build forty-eight houses at a total cost of £24,000. The parlour type will cost about £530, and the non-parlour type £464 each.

The Housing Committee of the Blyth Council have accepted the tender of the Building Guild, Ltd., for 100 additional houses of the "F" and "G" types for the Plessey Road housing scheme. The houses are to be erected in blocks of fours, sixes, and eights, and are of the non-parlour type, with three bedrooms.

At the last meeting of the Kiveton Park Rural District Council a letter was read from the Housing Commissioner stating that in view of the information furnished by the Clerk, he had no objection to the erection of twenty-two houses at Wales. At the same meeting the Council decided to press for sanction to erect sixty-four houses at Anston.

At a meeting of the Housing Sub-Committee of Edinburgh Town Council last week, it was agreed to recommend that ground on the Wardie housing site (at the Granton Road end) be offered to private bidders for feuing purposes—shops and tenements being the erections stipulated. It was pointed out that at Chesser Avenue and Slateford Road St. Cuthbert's Co-operative Society had bought a piece of ground in connection with a scheme to build shops and tenements at a cost of £50,000, and that the reason why the Corporation do not build shops on the housing areas is that there is no Government subsidy for that purpose.

General.

The death occurred on February 22 at the Homœopathic Hospital, after a serious illness, of Mr. Thomas Marshall Smith, A.R.I.B.A., of Crouch Hill, N.

At a meeting of the General Committee of the Wellington College War Memorial, held at Derby House, London, with Lord Derby in the chair, it was decided to adopt the plans for a cenotaph, prepared by Sir Edwin Lutyens, for the north aisle of the chapel, the names of the fallen to be inscribed in an illuminated book to be kept in the chapel. Of the surplus of the fund part is to be devoted to panelling and embellishing the Old Hall.

Plans have been completed for carrying out the Colwyn Bay and West Denbighshire hospital scheme on a site to the south of the present Cottage Hospital at Colwyn Bay. The plans have been prepared by Mr. S. Colwyn Foulkes, of Colwyn Bay, and approved by the committee, for an extension of the present hospital so as to provide forty-six beds in all, in addition to certain increased accommodation for the nurses and staff. Considerable excavating work has already been done.

Mr. Thomas Hall, of Pitfield Wharf, Waterloo Bridge, S.E., and of Malbrook Road, Putney, S.W., of Messrs. Hall, Beddall and Co., builders and decorators, who died on December 26, aged 87, left estate of the gross value of £64,030, with net personalty £60,980. He left £2,000 to his son, Herbert Nicholls Hall, but directed that if the trustees should be unable to trace his whereabouts within two years the legacy is to lapse, and it is to be assumed that he predeceased the testator.

Mr. E. J. Sadgrove has been co-opted by the Council of the Society of Architects as president for the remainder of the unexpired term of office rendered vacant by the resignation of Sir Charles T. Ruthen. Mr. Sadgrove was elected a member of the society in 1901, and since 1906 he has been a member of the council, and has held office as honorary treasurer, 1910; vice-president, 1914-15; and as president, 1916-20. His services to the society were recognised by the council in 1920, when they awarded him the gold medal.

In connection with the making of a sea wall and esplanade at Kirkcaldy as a relief scheme, the tender of Sir Robert M'Alpine & Sons, Glasgow, was last week approved, the sum involved being £95,089 6s. 6d. Twenty-seven schedules were received, and the three lowest offers were Messrs. McAlpine at £95,089 6s. 6d., Shanks & McEwan at £102,000, and Charles Brand & Co. at £104,000. The highest offer was £188,000. The estimate includes resurfacing the present road, erection of sea wall, and the provision of a new exit road at the west end. Messrs. McAlpine's offer means a saving on the original estimate of £12,240.

The Governors of the Royal Technical College, Glasgow, at a meeting held last week considered a letter from the Institute of Scottish Architects petitioning that a degree of architecture should be instituted by the University and the College on the basis of the present courses at the College and the School of Art. Mr. W. B. Whitie, who spoke in support of the communication, said that the Institute of Scottish Architects was anxious to raise the status of the profession in Scotland, and to co-ordinate the whole educational system of the schools and of the University. The matter was brought before them so that, with their assistance, they might approach the University with the view that they might make full use of the resources which they had in the College and in the School of Art whereby students might be entitled to aim at the hallmark of a University degree. Already their diploma curriculum met with the requirements of the Board of Education in London, and was higher than most of the schools and colleges throughout the country, and they felt that they ought to take a further step in advance. In the course of the discussion, Principal Sir Donald MacAlister said that he was sure that the University would give most friendly consideration to this application. The degree could only be obtained through an extension of the ordinance under the Affiliation Order to applied science in architecture, and the first step, he thought, would be for the College to discuss whether the diploma course was one which they desired to place before the University as proper to be brought under the Affiliation Order. It was finally agreed to ask the joint committee of the School of Architecture (representative of the College and of the School of Art) to prepare a statement for submission to the University.

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The Architecture of Illusion.

As against the presentation of architecture applied to ships which suggests in form and application anything but the associations of a vessel, we give reproductions this week of a building erected some twenty years ago for the New York Yacht Club, in which a very interesting attempt is made to combine suggestions proper and distinctive of the sea in a building on land. These form an interesting contrast to the various interiors of liners which we illustrated last week. Both to a certain extent illustrate how architectural form may be made the subject of fancy, and both are legitimate and interesting. The work of Messrs. Warren & Wetmore is a good example of the ability of American architects to deal with unusual problems, and, as compared with contemporary architecture of the time, reaches a high level of achievement. It is interesting to speculate how far and when what we may call architectural fancy may legitimately be given free rein, and when or where it should be restrained.

We should be right in objecting to see a large restaurant treated like a cathedral, as the associations usually connected with such a building would be vulgarised by its adaptation to such a different use: and we should probably feel there was even greater unfitness in imitating the interior of a great church in the design of a modern shop. We ourselves feel doubts about the good taste of reproducing the lines of an Italian palace or municipal building in the design of a modern store, because of the commonplace purpose to which the one is put as compared with the historical associations of the other building. We go so far as to say that domes, towers, and other architectural features of greater buildings are rather distressing when applied to a shop. We feel that people hurry in and out of a shop to buy and not to admire architectural forms, and that their too lavish display signifies a slightly undignified familiarity on the part of the mistress art.

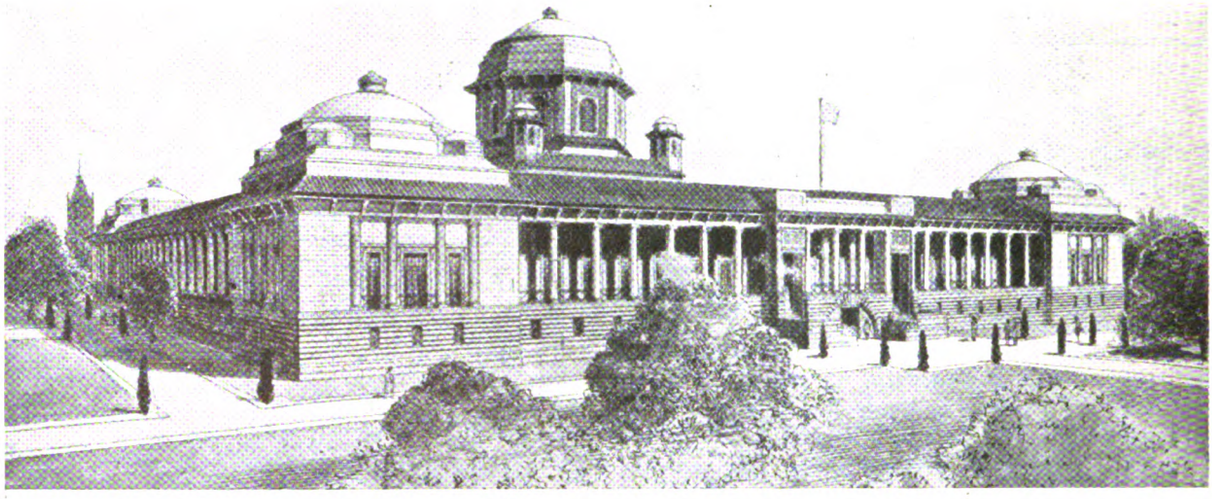
On the other hand, the theatre is a building in which the utmost freedom of fancy seems to be wholly legitimate, and whether such a building takes its architectural forms from Greece or Rome or from the French or Italian Renaissance matters comparatively little. We are most pleased if it suggests pleasant illusions, and the more such illusions can divorce it from the usual standards of everyday life and experience the more truly practical will it become in its central aim of framing drama to appeal to the imagination. In the theatre, too, people have leisure to see, and are at rest, and this factor should have much weight. The same reasoning applies to the architecture of the cinema and concert hall, but not to that of municipal buildings or business offices.

With the municipal building, or, indeed, any other structures connected with the administration of Government, our imagination should be restrained by the sequence of historical and traditional ideas connected with such subjects, and greater dignity and restraint are incumbent on the designer, nor is it fitting that we should be wholly eclectic in our search for types. The design of the church is even more strictly regulated by the obvious fitness of adhering to certain types which are clearly connected with association and tradition. The general adherence to Gothic types long after the age of the Gothic revival shows this instinct to be a strong one. Say what we will, it is only in countries which were much more essentially Roman in their civilisation than England has ever been that the art of the Renaissance now forms a natural vernacular where church building is under consideration. The average man associates a church with Gothic forms, the average Anglican clergyman dislikes anything else either consciously or unconsciously, with the result that the best our modern ecclesiastical architects are to-day producing work which is closely in harmony with the spirit of that of our forefathers before the Renaissance; while around these works every building takes on some form or other of Renaissance dress, nor does there seem to be any clear sign of a change of standpoint in this respect. It is as if one leakage had taken place in the dam which was built in the seventeenth century across the flood of mediæval design.

The house may—especially if money is not a primary object—be a legitimate field for the architecture of illusion. Bidston Court at Birkenhead was such a case, forming a replica of a well-known old timber hall. We should not condemn the taste of the client who, admiring Stokesay Castle, decided to have a modern house arranged in its form. Clients with enough money to gratify such whims are few and far between, but the provision of a certain number of replicas or houses based on such precedent may well be considered as possessing distinct interest and attraction. Much of the work of Mr. Baillie Scott is so absolutely based on the precedent of the past that in a hundred years' time it will be almost indistinguishable from it, save for its perfect state of preservation. The great point is that such attempts should be made only by the few men who have mastered the secrets of past time, and who have clients whose wealth enables them to do such work as it must be done. When Holloway, who had made his fortune out of a patent medicine, decided to build and endow a college, he may not have shown absolute discrimination in deciding that it should be modelled on Chambord, but he showed shrewdness and common sense when he demanded that his architect should first measure every part of the building chosen as a type. Holloway College may be said to belong to the architecture of illusion, yet we feel it indicates the possession of unusual enthusiasm on the part of a client, and discriminate taste on that of his architect; and it is, perhaps, more satisfactory than it would have been had an "expression of the spirit of the age" been attempted. An illusion in architecture must be like a perfect fairy-story told to an appreciative audience, otherwise it becomes a vulgar parody of better things. But it is good that we should have it occasionally in our midst to remind us that human beings are not machines, and may legitimately from time to time play with ideas, whether they are expressed in words or in stone.

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Illustrations.



BENGAL COUNCIL CHAMBER COMPETITION. Design submitted by A. W. S. Cross and Kenneth Cross, and Wills & Kaula, Joint Architects.

CLUB-HOUSE OF THE NEW YORK YACHT CLUB, 44th ST., NEW YORK, N.Y. Warren and Wetmore, Architects.

Notes and Comments.

The R.I.B.A. Business Meeting.

Mr. Delissa Joseph found little support for the views he advocated with respect to higher buildings, and the general sense of the meeting showed itself to be emphatically in favour of the attitude the Council had adopted on the question. As a matter of fact, the heights at present permitted are in almost every case sufficient, and there is little reason why a few exceptional positions or localities should be legislated for. We admit that there are such sites, but unless London is to become irregular and unsightly, it would be necessary to take very great precautions in respect to the design and arrangement of exceptionally high buildings. If the design of whole areas in London were absolutely under control we should say wide licence in the matter of heights might be advantageous, but this is never likely to be the case. If we want to increase the value of building land in London as a whole it can be most effectually done by the abolition of the law of ancient lights; so that, subject to the by-laws as to ventilation, width of street, and lighting areas, all can make the fullest use of building areas. We hope the question of the law of ancient lights may in the near future be dealt with not tentatively but completely by their abolition within a limited period; coupled with rights being given to anyone to buy out ancient lights on a graduated time-scale at some reasonable rate, instead of the extortionate rates which are now permitted by custom.

"The Gate of Remembrance."

We are surprised to hear from Mr. Bligh Bond that the Rector of Westbury-on-Trym has refused to meet him in a public discussion on the points in controversy, and quite agree that such a refusal argues weakness and not strength. If, as Mr. Bond states, he would like to give explanations at an open meeting of the Institute at which full discussion is invited, we are quite sure the proposal would find favour and prove most interesting. Meanwhile, we have every wish to be fair to Mr. Bligh Bond, though we confess to considerable scepticism in the matter. One point remains about which we should like to hear from Mr. Bond. He claims to have solved questions in relation to Glastonbury by psychical means. There are many other subjects connected with past buildings in London of which we are ignorant and should like further knowledge. Is it not possible for Mr. Bond to employ the same processes which resulted in success at Glastonbury to rediscover some of the many secrets relating to Old London; and would not such a demonstration, if successful, convince all of us and be of the greatest utility to lovers of history and tradition? We ask Mr. Bond to consider whether there is not good reason why he should not take the course we have suggested.

"Ad Quadratum."

We have received from Mr. Harald Aars, of Christiania, a pamphlet in which he gives an account of a careful analysis he has made of Dr. Macody Lund's work, "Ad Quadratum," and it is very aptly prefaced by a quotation from Ruskin: "Do not think of one falsity as harmless, another as slight, and another as unintentional. Cast them all aside" Mr. Aars has examined a large number of the diagrams of "Ad Quadratum," many of which he finds incorrectly drawn, and others, when compared with larger drawings, incorrect in themselves. He further points out the convenience of small diagrams for one who, like Dr. Macody Lund, wishes to make out a case. The diagrammatic lines with which the small-scale plans are covered are so coarse and thick that it is difficult to check their accuracy. We ourselves went over some cathedral plans according to Dr. Lund's system, and in no case could we find any real correspondence. The whole work must be put down as either the most amazing result of inaccurate drawing or as an attempt to deceive; and, seeing that the mistakes are in every case those which go to help Dr. Lund's theories, the last and least charitable conclusion would seem to be the more correct. We are surprised that the advisers of the Norwegian Government can ever have given the honour of their sanction to such an amazing production, but we hope they may yet, in the interests of truth and accuracy, disavow it and relegate the tissue of phantasies to the fate it deserves.

The Property Owners' Association.

At a recent meeting of the Property Owners' Association, Mr. Edwin Evans, J.P., L.C.C., said some very good things, and among them referred to the growing burden of the rates, as follows:—

"The landlord of to-day was the State, and a very good thing they were making out of it. First of all, they took 6s. in the £ for income tax, and then there were the local authorities. It was only 18s. in the £ in Battersea.

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It was 26s. in West Ham, and 36s. in some of the Welsh districts. It was marvellous that only within recent times that it was possible to pay away 42s. out of every £. It was a wonderful country. They wanted those things altered, and local authorities must be stopped from not only paying away all the money they had but also all they could borrow. With regard to the new L.C.C. Bill, their Association felt that they must oppose the passing of that Bill in Parliament. What they objected to was that under that Act property owners would be compelled at their own expense to clear out the verminous conditions of the houses which belonged to them. Such a condition of things was bad not only for property owners but for the public generally. The occupier should be forced to take that obligation of cleanliness, or—might he say?—the obligation of the good health of the people."

We quite agree with Mr. Evans that it is the occupier and not the landlord who should be made responsible for the duty of keeping buildings clean and sanitary, and we hope that the growing custom of shifting more and more responsibility on to landlords must in the end operate against the interests of tenants themselves.

Piranesi.

Students of the art of Piranesi will learn with satisfaction that, subject to adequate response, the Cotswold Gallery, Frith Street, proposes to publish next autumn a critical study of the Italian architect-etcher's work by Mr. A. M. Hind, Slade Professor of Fine Arts at Oxford, and a valued member of the British Museum Print Room staff.

In the projected volume Mr. Hind's critical study of Piranesi's etched work will be followed by detailed catalogues of the "Vedute di Roma" prints, numbering 135, and of the "Carceri" set, comprising in States I. and II. fourteen subjects, in the dramatically transformed State III. sixteen subjects. All these etchings will be reproduced on a scale sufficient for study, the majority of them in more than one State. Till now no attempt has been made to describe the various States of the "Vedute di Roma," nor to indicate the kind of impression best worth collecting.

No art library, no one who recognises the genius of Piranesi, should fail to obtain Mr. Hind's projected volume, the edition of which is to be limited to 500 copies. It will be published at three guineas, but the price to immediate subscribers is two guineas.

Sir John Burnet is to be invited to undertake the lay-out of the large stretch of sea front land which Ramsgate Corporation has purchased on the West Cliff.

The Middlesbrough Corporation Plans Committee has approved plans for a foundry at North Ormesby, on land recently sold by the Corporation to the Tees Bridge and Engineering Company.

Mr. James S. Bullough, who has acted as chief assistant surveyor at Preston for twelve years, was last week appointed borough engineer and surveyor by the same Town Council at a salary of £800 per annum.

For the purpose of dealing with questions of wages and grading in the area, building trade employers in the counties of Forfar, Perth, and Kincardine, at a meeting in Dundee, have decided to form a council of fifteen representatives to act as a connecting link with the Scottish Regional Council in these matters.

The Ministry of Health has decided that the office of the Housing Commissioner in Leeds, with its staff of twenty-five, shall be closed at the end of March. It was announced some time ago that the office was to be closed and the work transferred to London for reasons of economy, and at a conference of representatives of local housing authorities held recently in Leeds a resolution was passed protesting against this decision. The Ministry has, however, decided to adhere to its original plan.

By the invitation and assistance of Mr. H. Greville Montgomery the Architectural Association is organising a great fancy dress ball and carnival in the Conference Hall at Olympia on April 21. There will be a carnival procession illustrating "Brighter Building Stunts," which will parade the Building Exhibition at 9 p.m., previous to the ball, which will continue to 5 a.m. All proceeds will be devoted to the A.A. Endowment Fund. Early application should be made for tickets, which will be limited in number, to the Secretary, Architectural Association, 34 Bedford Square, W.C. 1. Single tickets, including refreshments, £1 1s.; double tickets, to admit gentleman with lady (not two gentlemen), £1 15s.



No. 3 SEAMORE PLACE, PARK LANE (DINING-ROOM). HEPWORTH AND WORNUM, Architects. (From "Academy Architecture," Vol. LIII.)

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Royal Institute of British Architects.

A special general meeting of the Royal Institute was held on Monday last, March 6, at 9 Conduit Street, W. Mr. Paul Waterhouse, President, was in the chair.

The following motion was then moved by the Chairman and passed unanimously: "That, subject to His Majesty's gracious sanction, the Royal Gold Medal for the promotion of Architecture be presented this year to Mr. Thomas Hastings, of New York, in recognition of the merit of his work as an architect."

The ninth general meeting (business) of the session was held immediately following the above special meeting.

The death was announced of Viscount Harcourt, Hon. Fellow, and of Mr. T. A. Smith, A.R.I.B.A.

The meeting then proceeded with the election of six candidates for fellowship and eighty-eight for associateship.

Higher Buildings for London.

Under the provisions of by-law 61 the following notices of motion had been received by the Secretary:—

That this general meeting of the Royal Institute of British Architects approves the action taken by the Council in connection with the report of the London Building Acts Committee.

To be moved by Mr. Maurice E. Webb (F.) and seconded by Mr. Raymond Unwin (F.).

That this meeting approves the general principle of allowing buildings to be erected, in certain positions, to a greater height than is the present practice, subject to proper safeguards as to construction, fire escape, and fire attack.

To be moved by Mr. Delissa Joseph (F.) and seconded by Mr. H. Austen Hall (F.).

Before the discussion had been formally opened, Mr. Delissa Joseph objected to the terms of the first motion as being of a character to restrict the area of the discussion and not being in accordance with the purpose for which the meeting had been called, namely, the discussion of higher buildings for London. The first motion amounted to a vote of confidence or censure of the action taken by their Council.

Mr. Waterhouse ruled that the motion was in order as being entirely germane to the matter to be considered.

Mr. W. R. Davidge suggested that as the terms of the first resolution included the second, there would be no need to proceed to the latter.

Mr. Waterhouse ruled that the two motions should be discussed—possibly the second being taken as an amendment to the first if Mr. Joseph so desired.

Mr. Maurice E. Webb, in moving the first motion, said he spoke as a member of the City of London, as a member of the Art Committee and of the Council, which had spent many hours in discussing this subject. Architects generally were a little dissatisfied with the London Building Acts, and felt there were many points which require elucidation. Two years ago an R.I.B.A. committee was formed to go into the whole question of these Acts. In November 1921 this committee submitted an interim report on two of the principal questions which had been considered—namely, high buildings in London and the cubical contents of large buildings. It was accompanied by a minority report. The Council referred the reports to four of their Standing Committees, and three of these proved in favour of the minority report. The effect of the Art Committee's report, however, was to agree with Mr. Joseph's committee on the matter of cubical contents. It should be noted that the London County Council had since made considerable modifications in their requirements in that matter. On the other two points Mr. Joseph's committee was opposed almost diametrically. In considering the attitude of the R.I.B.A. Council on this matter, it had to be remembered that they must think of the cause of architecture generally and the amenity of cities. They had to hold the judge's balance. Three out of four of their committees were against the proposals, and many outside bodies reported against them also. The Town Planning Institute had been into the whole subject, and now reported against it. The only body from whom the Building Act Committee received support was the representatives of the retailers. The latter naturally thought only of the interests of commerce, and there was nothing in their report to suggest that anybody or anything else had received the smallest consideration. But the R.I.B.A. Council did not exist to support one particular body, they were bound to think of the general public. To throw out the present motion would be a disservice to the Institute, to which the public look in these matters.

Mr. Raymond Unwin, in seconding the resolution, congratulated the Council on the public-spirited and thoroughly disinterested view taken. The Town Planning Institute had considered this matter in great detail, and reached certain conclusions. It should be remembered that the latitude of New York was nearer that of Rome than of London; in winter the sun did not rise in London more than 15 degrees above the horizon, and even in midsummer it did not exceed 60 degrees. In American cities like New York, despite avenues 100 ft. wide and over, there was great difficulty in dealing with traffic. Any increase of height must increase the congestion of traffic and strain on all services, it must reduce air space and light, and impede the circulation of air and penetration of sun. It had not been made clear what public benefit would be derived from increasing the volume of retail trade in a few hands and concentrating commerce. After considering these and other points, the Town Planning Institute decided it could not recommend there should be any increase at present in the height of buildings, but it recommended that a development plan of London should be prepared and zoning regulations made dealing with the height and character of future buildings. It was only a few years since this question was extensively debated in Scotland, and the Royal Commission on Housing strongly urged legislation to forbid tenements more than three storeys high. It was stated that the cost per room worked out at about double that of cottages. It was also a fact that the higher the building the smaller the open space round it, because the more valuable it became. He could not imagine anybody wanting higher buildings in London who had been in America, explored their tenement blocks, seen samples of the thousands of rooms in which there are no windows or in which one must strike a light to find the window; who has stayed in their best hotels in rooms innocent of sufficient daylight to enable one to dress; who has had to traverse their congested streets, tried to get into the Underground about 5 o'clock or move along the sidewalks at lunch-time; or, worst of all, has traversed a street under that infernal apparatus known as the "Elevated." To anyone who knows the results of high buildings, whether in America or elsewhere, who knows how London is the marvel and envy of the whole world because of its genius in escaping this curse—well, it was difficult to believe people could be so foolish, so blind to experience and so out-of-date. But this movement was not confined to England; it was going strong in Germany eighteen months ago, and would certainly appeal to philanthrophists like Herr Stinnes! America was a great country, and a rich country, and it might be that Europe must be content for some years with the rôle of poor relation. But when Englishmen and architects who at least might be supposed to know what was fitting proposed to dress up London in the cast-off clothes of New York it was a little too much. Thank Heaven it was not of London that Sir Martin Conway needed to say that he would not live lower than the thirtieth storey if he could help it. Sir Martin did not seem to have given much thought to the poor wretches who had to fill the twenty-nine storeys below the thirtieth. This was a case in which they were asked to sacrifice genuine public interest for private interests. Such an attempt ought to be resisted. There were still a few open spaces left in London. Were they going to allow these

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who owned Lincoln's Inn Fields to erect a wall of buildings round it 200 ft. high? Such open spaces were public possessions as breathing-spaces. He hoped the Institute would continue to protect London from ideas which are already out of date in those countries which had tried them.

Mr. Arthur Keen explained that his name appeared as the sole signature of the minority report because there had been no time to get others. It had been said architects were objecting to higher buildings simply on the ground of artistic considerations. That was not true; architects were concerned also with the economic considerations. But he would be sorry if the Institute did not lay full stress on the architectural side of the discussion. By their Charter they were concerned with the general advancement of civil architecture and the promotion of "the domestic convenience of citizens and the public improvement and embellishment of towns and cities." Continuous lines of high buildings must tend to destroy the beauty of London. Victoria Street was a proof of that fact, for it was now one of the most depressing streets. Light was essential to beauty. London in a great many respects was extremely beautiful—largely thanks to its sky-line. Unfortunately, that sky-line, on which everything depended, was being very rapidly blotted out already in places like Regent Street, King William Street, Moorgate, and Gracechurch Street. At present there was practically no control over the owner except the London Building Acts. Owners could not be blamed if they wished to make the utmost out of their possessions. In the matter of light the conditions of London and New York were entirely different, for New York was 700 miles to the south of the other. Buildings 120 feet high in the streets of London would hardly bear thinking about. The traffic of London had already reached such a point one does not know what to do. To double the accommodation for workers would be intolerable. It was seriously proposed to erect tenement houses for the poor 150 feet high! Undoubtedly, in certain cases high buildings might be perfectly right, as for instance, the Hotel Cecil on the Embankment, and the high tower of the Prudential Offices in Holborn. But the L.C.C. already possess the power of saying yea or nay to any proposal for higher building. In exercising that power he hoped they would take into account all the circumstances, and consider the amenity of London from the point of view of architecture.

Professor S. D. Adshead said he would have signed Mr. Keen's minority report if he had not been in Newcastle at the time. The principle of extending cities outwards rather than contracting them was getting a hold of the world. Speaking with some experience, he declared it ridiculous to talk of housing the working classes in buildings so high that it would be necessary to instal lifts for reaching the upper storeys. Was London going to be one of the reactionary cities of the world? At present of all the towns in Europe our permitted height to the underside of the cornice was only equalled by Vienna. So London was not so bady off—and in addition the County Council can allow higher buildings to be erected on suitable spots. He hoped such sites would never be the subject of regulations or by-laws.

Mr. Delissa Joseph said the arguments against the introduction of sky-scrapers into London were unanswerable. But the highest building the R.I.B.A. Committee contemplated was only 150 feet. Therefore those arguments did not apply to their proposals. The movement originated two years ago in some observations in the Estate Market columns of "The Times," in which it was suggested that London should be allowed to spread upward. Within the previous few years he (Mr. Joseph) had had to design buildings facing Hyde Park and the Thames Embankment and was then struck by the inadequacy of opportunity to take full advantage of those sites. So he wrote a letter in support of the suggestion. The idea made much progress in a few months. Unfortunately, Sir Martin Conway shortly afterwards advocated 500-feet skyscrapers: these would, of course, be impracticable in London. Then he (Mr. Joseph) decided to bring the whole question forward for the consideration of his fellow-members of the R.I.B.A. A committee was appointed by the Council and it took its task very seriously. Before reporting to the Council a deputation held conferences with various bodies and met with very considerable support from banking, shipping, and purely commercial interests. It had been proved that the City of London could not now accommodate the business transacted there. The City Lands Committee of the Corporation welcomed the suggestions. The Building Acts Committee was not asking for rows of streets 120 feet or 150 feet high. But the Committee wanted that the London County Council should let it be known that they were ready to take a more generous view of applications for taller buildings on suitable sites. London had very much the same characteristic as New York in that the business transacted needed more space than was to be found in its central areas. Without commerce and without facilities for commerce there would be no work for architects. A new basis of assessment would be created by the erection of higher buildings. It was grotesque to assume that English architects were incapable of producing beautiful designs for buildings 150 feet high. The London County Council had already accepted the principle on a small scale. Sir John Burnet's building on the north approach to London Bridge, for instance, would stand 122 feet above the Lower Thames Street level.

Mr. Andrew Taylor said he felt entirely in sympathy with the aspirations of the younger members for freedom in designing higher buildings. As a Fellow of the Institute and as a past chairman of the London Building Acts and the Improvements Committees of the County Council he tried to take a broad view. The traffic problem was already a pressing one. One shuddered to think of what would happen if the present-day population became doubled. Why were not the existing facilities taken advantage of and the present low buildings raised up to 80 feet? All round Bloomsbury and the City hundreds of buildings 50 feet high might be found. If these were raised the accommodation would be doubled. In Kingsway the buildings are already high enough—if their height was doubled it would become a gloomy, almost a narrow, street instead of one of the most spacious. The question of fire protection was very important. The L.C.C. Fire Brigade was quite able to tackle high buildings if given adequate apparatus. But their present apparatus had been organised for buildings of the present height, and could not possibly tackle those of 150 feet or 200 feet. In New York there were high-pressure water mains which cost millions, and to introduce them into London might add 1s. to the rates. There would also be other immense expenses. The whole Fire Brigade system would require to be revolutionised. The Building Acts Committee of the L.C.C. was open to consider any suggestions and to use their discretionary powers as to allowing buildings to go up higher than 80 feet. It should be noted that their recent decision had not added an inch to the outside height of buildings in London, but it permitted the rearrangement of the space within by the introduction of another storey. The Committee wanted to help architects, but they did not desire that anything should be put formally into the Building Acts and so deprive them of their present discretionary powers.

On the motion of Mr. Davidge, the question was then put. The voting was 79 in favour and 8 against Mr. Maurice Webb's motion.

Mr. Delissa Joseph, by permission of the chair, then proposed his motion in the form of an amendment to the one just approved. He pleaded that the question should be left open, and that the proposals of the Committee should be accorded further thought. The public interest was the architect's interest. The development advocated could not but react favourably towards the whole industry.

Mr. H. Austen Hall, in seconding the amendment, said it seemed to him a safe resolution to pass. Montreal, which closely resembled London, possessed several

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delightful buildings 110 feet and 120 feet high. He believed it would give a tremendous stimulus to trade if greater height was allowed. And he begged those people who had seen buildings 120 feet high to remember how satisfactorily they could be designed.

Sir Aston Webb remarked that Mr. Joseph told them he wanted this question to be left open. He (Sir Aston) considered they should shut it down, and let it be distinctly understood that the Royal Institute was opposed to a general increase in the height of buildings, and was content to leave it to the discretion of the London County Council. Leonardo da Vinci had said, "Let the street be as high as the universal height of its buildings." The L.C.C. restrictions were introduced on account of Queen Anne Mansions. To think of those buildings being reduplicated was awful. St. James's Park was entirely spoiled, and the view from Buckingham Palace partly spoiled, by that block. A few such would spoil all London. Surely it should be possible to insist on seeing no more buildings of that sort are put up! If that were not done this generation would go down to posterity condemned.

Mr. Oswald P. Milne contended it would be most unfortunate if it went out that the Royal Institute supported the present London Building Act. A single rule now governed all London. A building might be too high on some sites and too low on others. To reject Mr. Delissa Joseph's amendment would be a reactionary and an extremely conservative policy. The business man should know in advance what he will be allowed to do with his site. Under existing conditions he has to get out expensive plans before he can know. In London no man can sit down before he builds and count the cost—he is at the discretion of the L.C.C. Committee. They did not want skyscrapers, but they did want the Institute to think the whole thing out. The present was a day of big things, and enterprise ought to be encouraged. Architects should be leaders and guides to the community in matters of building. If they accepted the idea that the London Building Act's regulations as to high buildings was the last word, the public would look upon them as reactionary.

Mr. W. R. Davidge said the Institute's Council had already achieved a very substantial improvement in the Act. He must protest vigorously against 120-foot buildings in the City. Their candidate for the Royal Gold Medal, Mr. Thomas Hastings, had expressed a strong adverse opinion against them. So had a commission appointed to investigate the subject in New York. Mr. Joseph's resolution might seem harmless, but there was much possible harm in it.

Professor Beresford Pite said all credit must be accorded to Mr. Delissa Joseph for the skilful and tactful way he had handled his subject. But Mr. Joseph had not attempted to answer the arguments raised against his motion. In fact it could not be done.

On a call for a vote, Mr. Joseph waived his right to reply owing to the lateness of the hour.

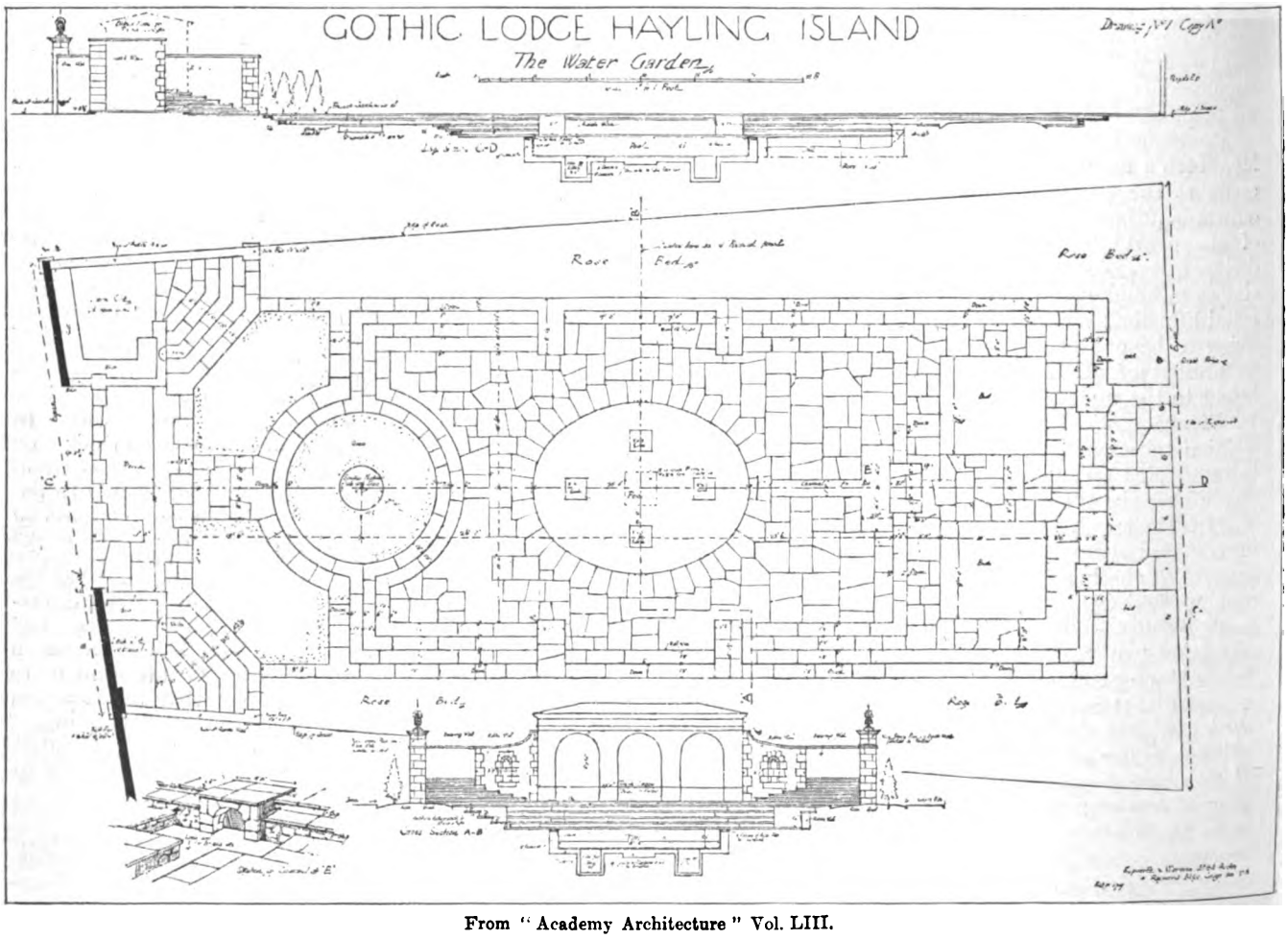
The vote being put, it was found that 12 were in favour of the motion and 51 against.

The Council of the Royal British Colonial Society of Artists have elected Mr. W. E. Riley, F.R.I.B.A., a member, as representing the R.I.B.A. in that society.

The plans have been approved for the erection of a new cinema, billiard hall, and café, Knifesmith Gate, Chesterfield. The architect is Mr. W. E. Jackson, 6 Stephenson Place, Chesterfield.

The Duke of Atholl, K.T., chairman of committee of the Scottish National War Memorial, in a communication just issued, mentions that over £80,000 in cash has been received towards the cost of the proposed shrine in Edinburgh Castle.

At the last meeting of the Worcester City Council the appointment of a city architect came up for consideration, and the Mayor explained that the appointment was an annual one, but the last appointment expired at the end of December last and no new one had been made. After some discussion the following motion was adopted: "That instead of appointing a city architect the Council order that the preparation of specifications for supervision of all repairs of Corporation property and the construction of buildings not exceeding in cost the sum of £500 be made part of the duties of the city surveyor, and as regards more important works be dealt with as the Council decide when the occasion arises, it being understood that Mr. A. G. Parker will carry out any work he has now in hand."



From "Academy Architecture" Vol. LIII.

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GOTHIC LODGE AND WATER GARDEN, HAYLING ISLAND. HEPWORTH AND WORNUM, Architects.
(From "Academy Architecture," Vol. LIII.)

New Books.

"Academy Architecture and Architectural Review." Vol. LIII, 1921.

We have received a copy of the fifty-third volume of Academy Architecture,* which contains a very interesting series of illustrations of a number of recent buildings, including the Regent Theatre, Brighton, the Royal Free Hospital Out-patients' Department, by Messrs. Ashley and Newman, and an interesting series of drawings and composition sketches of Sir John Burnet's building at London Bridge. A series of illustrations of garden architecture follows, from which we illustrate Messrs. Hepworth and Wornum's interesting scheme for a lodge and water garden at Hayling Island. A section dealing with contemporary sculpture, and one on interior domestic architecture complete the volume. From the latter we give an illustration of a good interior design by Messrs. Hepworth and Wornum, whose design is both delicate and interesting in character. The volume is well produced, and gives in convenient form a good idea of some of our current work. As we should expect, the section dealing with sculpture is the weakest, because English sculpture, which showed marked signs of an advance some years ago, seems once more to have been frozen into rather uninteresting conventionalism. We have always regretted Mr. Epstein's apparent desire to "shock creation," because his best and most normal work possesses a quality of force and life which is almost entirely absent from the work of his contemporaries. If Mr. Epstein would only refrain from playing to the gallery, which crowds to see anything unusual, he could probably secure for himself well-deserved and lasting fame.

* "Academy Architecture and Architectural Review." Vol. LIII. B. T. Batsford, Ltd. 5s. net.

The "Architect" Fifty Years Ago.

MARCH 9, 1872.

THE GREAT EASTERN STATION AT LIVERPOOL STREET.

It appears that a misunderstanding with the metropolitan authorities is preventing the Great Eastern Railway Company from proceeding with the erection of their intended new large station at Liverpool Street, in connection with the metropolitan extension works now in progress. At the half-yearly meeting of the company just held, a shareholder complained of the confusion of old bricks by the demolition of old houses, and the large extent of open space that existed from Liverpool Street northwards, and remarked that the loss of rents must have been enormous. The chairman (the Marquis of Salisbury), in reply, stated it was to be regretted that the space had remained so long unoccupied, but that had been caused by an unfortunate arrangement with the East London Company, and the conflicting views of the metropolitan authorities. They had a conflict as to the title of the land, which would have to be decided before they could go on with the works. He added, with reference to the East London Company, that he thought it would have been much better if that company had provided a station and works for themselves, independently of the Great Eastern. As regards the metropolitan extensions of the company, it appears that the line is now all but completed as far as Bethnal Green and Commercial Street, Bishopsgate Street; and it is expected that the Government inspector will go over it during the present month, preparatory to its opening. At the meeting above named, the chairman incidentally stated that the gross cost of the metropolitan extensions, including the Liverpool Street station, would, when finished, be 3,800,000*l.*, but from that must be deducted what they would save by the re-sale of surplus lands, which would reduce the whole expenditure on the metropolitan lines to something between 3,500,000*l.* and 3,600,000*l.*

Mr. W. S. Weatherby, F.R.I.B.A., of Wandsworth Common, S.W., left estate valued at £5,540. Mr. W. Baker, of Southend, of Messrs. Baker & Wiseman, builders' merchants, Southend, left estate of the value of £33,634.

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London Art Galleries.

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The exhibition of the Goupil Gallery, which I held over for lack of space last week, includes paintings by Mark Gertler and Ethel Sands, and drawings by Bernard Meninsky. The best of Mr. Gertler's work here is perhaps the figure study of a young girl under the title "Meditation." This figure has considerable beauty of type, and attention has been paid to the drawing, though it may be suggested that the breast, as compressed by the arm, is out of relation to the side; or perhaps it is that the whole left side, from shoulder to hip, is weak in drawing. In the "Roses," next this, the artist is at his worst: there is no careful drawing here of the detailed and exquisite petals (which Botticelli could treat so lovingly), no radiancy, no reflection of light; to the rose-lover such handling seems an insult to the queen of flowers. "Daffodils" is distinctly better; but the china figures which form the subject of "The Jockey," "The Hunter," and others suggest the inquiry whether such subjects are really worth painting. They are only so for exhibition of supremely clever technique, which is scarcely the case here.

Upstairs, Ethel Sands shows us mostly interiors, painted in oil with clean, bright colouring. Their fault seems a certain monotony of subject and treatment: if we ask whether china figures are worth painting the same remark may surely apply to two mackerel on a plate, or even to the same number of red mullet; but some of the interiors ("An Alcove," "A Summer Morning") are charming, and in a "Blue Flower-piece" the artist—who is, I believe, American, but has been long settled among us in Chelsea, where she has a charming house—shows herself as a brilliant flower-painter. In the room next this Mr. Meninsky's theme is this time not babies (though one unattractive infant intervenes) or their mothers, but the female form, and I consider these drawings among the best he has yet done. The reason I think this is their freedom, their looseness of handling, and "abandon" to the inspiration of the subject. He has thrown his model into the most difficult and transient poses, and produced some wonderful studies in wash and line (to be compared with even John, whom they at once recall to us) and also some dismal failures.

That does not matter, for it is worth trying for something fine in the manner of the great masters of art to risk a few misses; and the "bull's eyes" or "inners" are here well in the majority.

At the sixty-seventh exhibition of the Society of Women Artists I noticed especially the fine portrait of Lady Finlay and Child by Mrs. Blakeney Ward, two characteristic seaside paintings ("The Rock Pool" and another) by Dorothea Sharp, R.B.A., Rosalie Emslie's finely drawn figure "She walks in beauty," which I picked out for mention in the last R.A., and Flora Lion's "Butterflies," a girl in Japanese dress. In Lucy Revel's "Adam and Eve" our first parents appear as still very juvenile amid the fresh verdure of spring, while a very wooden elephant perambulates the background, and the fair-haired Eve is already busy with the apple.

I shall treat later Mr. Hubbard's exhibition of caravan life and old-fashioned fairs at the Brook Street Gallery. Mr. Hubbard is the founder of the Print Society, and an authority on etching; Miss Langdale has paintings in the same exhibition. Messrs. Bromhead, Cutts & Co. announce an exhibition, commencing March 23, of water colours by Mr. W. G. Burn-Murdoch. Early in March will be held at the Leicester Galleries a Memorial Exhibition of the work of the late Claude Shepperson, A.R.A., A.R.W.S., which cannot fail to be of interest. At the Grieves Gallery Eva Savory will show her flower paintings from March 9. The Venetian Rooms, closed since the war, re-opened to the public at the National Gallery on Tuesday, March 7.

Mr. Wheatley's charming nude of "Flora" at the Grosvenor Gallery, which I mentioned specially in these columns, has been acquired by the Contemporary Art Society. The Trustees of the Chantrey Bequest have acquired the late Edward Stott's charming painting of "Changing Pastures," which was lent to the Exhibition of Works by Recently Deceased Members of the Royal Academy.

S. B.

Copyright in Art.—I.

By Selwyn Brinton, M.A.
(Of the Inner Temple, Barrister-at-Law.)

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In dealing with the interesting subject of copyright in works of art—among which I shall later give special attention to architectural designs and buildings which, under the present Act, are specifically included among artistic works—I consider that the only satisfactory method will be to proceed from the evolution of this idea of copyright in general, and of works of art in particular, and to trace in broad lines the development of this idea of protective right as materialised in legislation.

Copyright has been defined as "the sole and exclusive liberty of printing or otherwise multiplying copies of an original work or composition"; but in the Copyright Act of 1911 this definition is widened to include for the purposes of this Act "the sole right to produce or reproduce the work in any material form whatsoever, to perform—or in a lecture to deliver—the work or any substantial part thereof in public, or, if unpublished, to publish the work or any part thereof."

These words may seem to apply more directly in our thought to books, which were in fact the first subject for copyright; and Mr. E. J. Macgillivray, LL.B., has pointed out that the first record we have of such action was when the Crown asserted its prerogative to control the printing press as early as Philip and Mary, in 1556, while Henry VIII. created the Company of Stationers to supervise the publication of books. In 1640 the Star Chamber was abolished, and all regulation of the press, along with the King's own authority, set at nought: but we get on to more solid ground, in the year 1709, in the First Copyright Act (8 Anne c. 19). The House of Commons had that year been petitioned that "the liberty now set on foot . . . is no way to be effectually restrained but by an Act of Parliament"; and the Act just mentioned gave authors of books then printed the sole right of printing them for a term of twenty-one years from April 10, 1710, and of books not then printed for fourteen years, with the proviso that, at the expiration of the said term, if the author were alive, the sole right should return to him for another fourteen years.

But the titles of books thus protected had to be registered at the Stationers Company, and nine copies of them delivered to certain Libraries. The famous case of Donaldson v. Beckett, carried up to the Lords on Appeal, is of interest as affecting the Common Law and Statutory rights under this Act, but is a little outside my subject here, which is more specifically concerned with copyright in works of art; and in 1842, thanks to the untiring efforts of Serjeant Talfourd, the Copyright Act (5 & 6 Vict. c. 45) was passed, which extended the period of copyright to the life of the author and seven years after his death, or a term of forty-two years, whichever should be the longer.

In spite of its defects—as Mr. W. A. Coppinger, F.S.A., LL.D., has pointed out in his masterly treatment of this subject,—this was the governing statute as to literary copyright till the recent Copyright Act (1 & 2 Geo. V.) of 1911; and one cannot help admiring its author's eloquent appeal when—referring to the term allowed in the immediately preceding Act (54 Geo. III. c. 156)—he exclaimed "There is something peculiarly unjust in bounding the term of an author's property by his natural life, if he should survive so short a period as twenty-eight years. It denies to age and experience the probable reward it permits to youth—to youth sufficiently full of hope and joys to slight its promises."

Now let us come directly to copyright in works of art, which may be said to commence with the Engraving

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Copyright Act (8 Geo. II., c. 13) of 1734. It is said that the painter Hogarth was very instrumental in getting this Act passed, and that this may account for the fact that it only protects work of which the engraver (as in his own case) was also the designer; in any case this omission was remedied by 7 Geo. III., c. 38, which gave protection to any one making an engraving from the original work of another; and this protection was enlarged by the subsequent Acts of 1777, of 1830 (extending its provisions to Ireland), and of 1852, yet further extending those provisions to lithography and other mechanical processes.

In 1814 by the Sculptor's Copyright Act (54 Geo. III, c. 56) that branch of the fine arts had come under protection, the terms being in this case fourteen years, with a further reversionary term of fourteen years to the author of the work if then living; and, lastly, in order of time, paintings, drawings, and even photographs were at length protected by the Fine Arts Copyright Act of 1862 (25 and 26 Vict., c. 68).

The provisions of the Act protected the above-mentioned works for the life of their author and for seven years after his death; but it seems that, practically owing to the bad wording of the Act, the copyright might have been lost altogether, unless the artist upon the first sale of his work had reserved the copyright to himself by agreement in writing.

We have now reached the Copyright Act of 1911, which is a landmark in this branch of protective legislation, though it may be noted in passing that, even before this important enactment, under the Fine Arts Copyright Act of 1862 an architect's plans and sketches were protected as "drawings," though the property was lost unless expressly reserved on "sale" of the plans.

But the present Act is so far comprehensive in its treatment of all branches of art creation that I shall reserve to a later notice the study and analysis of its main provisions.

Correspondence.

The "Rate-Aided Private Builders?"

To the Editor of THE ARCHITECT.

SIR,—It is rather difficult to follow the line of reasoning of the Housing Committee of the London County Council in arriving at the conclusion "that a direct subsidy is preferable to an exemption from rates, which would merely be a subsidy in a disguised form."

The direct subsidy, though ostensibly for the benefit of private builders, merely enables them to build houses that can be let at an uneconomic rent. An uneconomic rent entails an uneconomic assessment of rateable value, so the subsidy is really one to the tenants in a disguised form.

In addition to the increased taxation to pay the subsidy, the ratepayers have in reality to subsidise the tenants or occupiers of the new houses.

There is, at present, no security against the indefinite extension of the Rent Restriction Act and similar future legislation, or the increase of local taxation through pooling of rates and adjustment of areas, apart from the certainty of the deficit in annual local income due to falling off of building, which, if it continues, must ultimately lead to the bankruptcy of local authorities.

The direct subsidy can only help the comparatively few who wish to build for themselves, or the small speculator who builds for a quick sale; and, as less than 10 per cent. of occupiers in this country own, can afford to own, or wish to own, their houses, it should be apparent that the State subsidy scheme is worse than useless.

Housebuilding, like any other trade, whether "workmen's dwellings," "heroes' homes," or for any other class, is dependent on the investor, and until the latter can obtain a reasonable return on capital with security there is no prospect of any real solution of the housing problem, which is becoming more and more acute, and cannot be dodged indefinitely.

The deplorable state of things existing has been caused by destructive legislation and the increasing burden of local taxation on building enterprise, which long before the war had made housebuilding unprofitable and reduced the building trade to less than half its size in the year 1901, when it employed over a million men and was one of the largest trades in the country.

The proposal to exempt new houses from rates is a practical step to attract the investor, and, though at first sight it appears to be unfair to the present ratepayer, in practice it will not do him so much harm. The greater part of the rates go towards purely national services, such as education, police, main roads, Poor Law administration, &c., and it is difficult to see how new houses can increase these expenses. It costs just as much to educate ten children living in one room as it does if they live in three.

The majority of ratepayers are also taxpayers, and it makes no difference in which capacity they pay. The system of collecting taxes is in the main fair and just, but that of rates admittedly unfair. Any system that does not take into account ability to pay is financially unsound. The owner and occupier are bearing the burden, while a large section of the community, well able to subscribe, avoid payment altogether.

There is no reason why the building trade should not employ as many men as it did twenty years ago. The work is waiting. There is permanent employment for an additional half-million men, with a turnover of over £100,000,000 a year in wages, and the corresponding increase in wealth to contribute to the relief of taxation.

All this is being sacrificed for the need of a constructive housing policy, which alone can save a great national industry and prevent the increase of overcrowding and deterioration of the standard of living beyond all remedy.

The payment for national services out of national taxation, and a sound and equitable adjustment of rateable values, appears to be the common-sense line of procedure, in spite of the L.C.C. Housing Committee's report. If there are any real obstacles other than political it would be interesting to know them.

Something must be done sooner or later, and it is evidently up to the general public to compel the authorities to act. If we do not do so we do not deserve to have houses. At any rate, we shall not get them.—Yours, &c.,

E. G. HOLTOM, F.R.I.B.A.

Holt, Norfolk,
March 3.

"Cheap Architectural Services."

To the Editor of THE ARCHITECT.

SIR,—It would be interesting to know who is your local correspondent, as the information contained in your article under this heading is incorrect.

My offer was to supply the names of ten architects who would be willing to design and supervise fifty houses at £10 a house, the cost of the houses being about £450.

You will note that the fees £5,000 for 500 houses are actually in excess of those allowed by the Ministry of Health for the stipulated number of houses,—Yours, &c.,

Paradise Street, S. N. COOKE, F.R.I.B.A.
Birmingham, March 4.

Unification and Registration.

To the Editor of THE ARCHITECT.

SIR,—Mr. Arthur Keen could scarcely expect that his letter in your issue of the 24th inst. would remain unanswered. Although, on general principles, I have no fault to find with his remark that "those who deal with the business of the R.I.B.A. know exactly what an architect is, and are in no danger of mistaking an undertaker for one," yet it will be impossible to debar the architect-undertaker from membership under Resolution 1 of the Council, which provides for the admission of *all* architects.

It is, however, in another part of Mr. Keen's letter that its author's great creative imagination is more fully expressed. I refer to Mr. Keen's request for an explanation from Mr. Hubbard and myself because, as he alleges, "after preaching Registration by Statute steadily for a great many years, and addressing meetings up and down the country on it," we are now suddenly convinced that it is an impossibility.

In Mr. Hubbard's absence abroad I venture to say that neither he nor I "preached Registration by Statute steadily for a great many years." For, as a matter of fact, our evangelical labours in this direction occupied our time and attention for about from three to four consecutive weeks. Further, we have neither become "suddenly convinced that Registration by Statute is an impossibility," nor have we ever said anything to that effect. This being the case, I

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shall be extremely obliged to Mr. Keen if he will endeavour to restrict any future remarks he may have occasion to make concerning me within the boundaries of truthfulness and fairness, even although, consequently, the force of his arguments may suffer some slight diminution. Many years ago Mr. Hubbard and I visited most of the Allied Societies and endeavoured, not unsuccessfully, to obtain their support in favour of the then new movement for the Statutory Registration of Architects. I have never gone back on the principle we advocated, and have since consistently supported any sound measures brought forward by the Council to advance the cause of Statutory Registration. But, from past experience, I am now enabled to realise in their full significance the numerous difficulties that have to be surmounted in *any* attempt to obtain the desired result. And I shall strongly oppose any scheme for ultimate registration that omits to secure the welfare of the Institute, as at present constituted, pending what I am convinced will prove to be a long-drawn-out struggle for statutory powers. And, despite Mr. Keen's remarks, I claim that my consistency in preferring the Institute as it stands to-day to any so-called scheme of unification, which nothing short of Statutory Registration *first* can bring about, has been shown in the past. As an example I opposed the Council's efforts to tamper with the constitution of the Institute by the creation of the Licentiate class, but was outvoted. And in this connection I am not ashamed to add that *after* the acceptance by the general body of the Council's proposals, I did my best to make the new class of membership popular among provincial architects.

As to the suggestion that the opposition to the Council's scheme should be held over until the publication of further details, may I ask why, if these are essential, did not the Council hold its hand until the details were available, and why was no full discussion allowed when the Resolutions were brought forward? And as both the supporters of the Resolutions and those opposed to the Resolutions made up their minds on *precisely* the same information, namely that supplied by the Report of the Unification and Registration Committee, it would also be interesting to know why the minority members of the Council are so frequently urged by the majority members to wait for the details of a *fundamentally* unsound scheme.—Yours, &c.,

ALFRED W. S. CROSS.

45 New Bond Street, W. 1.
February 28, 1922.

The Unification Crisis.

To the Editor of THE ARCHITECT.

SIR,—I have no wish to continue the wrangle on the question of Unification; but Mr. Keen who is, we are quite sure, doing his best to stand by his Council, need not throw quite so much dust into the air. In spite of what he says, we must take the wording of the Council's resolution at its face value. When the Council says "All architects of the United Kingdom," we must assume that this is an inclusive term, in spite of any qualifying words embodied in the scheme. But if Registration is ever to be realised, it will be for Parliament and not the Institute to define who are to be included in the Bill.

Parliament will not take away any man's living, and all men who call themselves "architects," and gain a living, or a part of their living, as architects, will have to be protected in spite of any qualifying words adopted by the Institute.

For the time being, until the Bill is presented, the Institute can be as exclusive as it pleases; but, in the end, all architects of the United Kingdom, even though their interest is remote in architecture, will, in the words of the Council, have to be "included in the Institute."

To my mind, the basic principle of Unification first and Registration afterwards, is wrong. We are not concerned with the details, they will not alter the wrong basic principle, which we are determined to oppose.

Our voices may not carry far, but I do hope that the Unification and Registration Committee will not persist in pursuing this wrong policy. If it does, we are convinced that it will find a large majority of the members of the Institute against the scheme; if, on the other hand, it attempted to get their Bill through Parliament first, the Committee will have the almost united support of the Institute behind it.—Yours, &c.,

February 28, 1922. GEORGE HUBBARD.

R.I.B.A. Exhibition of Working Drawings.

Arrangements have been made for holding a special students' evening on Wednesday, March 15, at 8 p.m., in connection with the Exhibition of Architects' Working Drawings, in the Galleries of the Royal Institute of British Architects, 9 Conduit Street, W. 1. Students from the architectural schools and others are invited to attend. The architects of the buildings, the working drawings of which are exhibited, have consented to be present, and will give students information on special points of interest. No cards of admission are required. Light refreshments will be provided.

As the Exhibition has been greatly appreciated by students and junior members, at the special request of many of these the period of opening has been extended to 7 p.m. daily (Saturday 5 p.m.) until the termination of the Exhibition.

Forthcoming Events.

Friday, March 10.—London Society. Meeting at 18 John Street, Adelphi. Paper by Capt. Lyon Thomson, F.S.A., entitled "The Open Air Life of London." 4.30 p.m.

—— Garden Cities and Town Planning Association. Annual Meeting at Conference Hall, Olympia. 6 p.m.

Tuesday, March 14.—Royal Sanitary Institute. Meeting at 90 Buckingham Palace Road, S.W. Paper by Mr. A. H. Barker, B.A., B.Sc., entitled "Central Heating in Relation to Domestic and Other Buildings." 5.30 p.m.

—— Sociological Society. Meeting at 65 Belgrave Road, Westminster, S.W. Paper by Mr. W. G. Constable, M.A., entitled "Art and Society." 8.15 p.m.

Wednesday, March 15.—Board of Architectural Education. Special Students' Evening at 9 Conduit Street, W., in connection with the Exhibition of Architects' Working drawings. 8 p.m.

Thursday, March 16.—Edinburgh Architectural Association. Meeting at College of Art, Lauriston Place. Paper by Mr. John Geddie, entitled "Architectural and Archæological Notes of a Journalist." 7.30 p.m.

—— London Society.—Annual General Meeting at the Royal Academy.

The plans of the proposed hospital for Retford, prepared by Messrs. Brierley & Rutherford, of York, were approved by the Governors on the 2nd inst., and authority given for the work to proceed.

Mr. E. J. Silcock, of London, has prepared a scheme for modernising the present sewage disposal work at Skegness at a cost of £15,500. The recommendations have been adopted by the Council.

The proposal to build a hospital at Nelson on a site near Marsden Park as the town's war memorial has been abandoned, and it is probable that Reedyford House will be extended and used permanently for hospital purposes. Reedyford House was purchased by the Corporation several years ago, and during the war was used as an auxiliary military hospital. The scheme for its extension and equipment will cost over £45,000.

At the last meeting of the Bedwellty District Council the surveyor (Mr. D. H. Price) reported he had received a letter from the Housing Commissioner pointing out that the tendered prices for the proposed houses were too high, and that the Ministry were not prepared to allow the Council to erect houses by direct labour. The letter said that fresh tenders should be invited, and that the prices must not exceed the following: (a) Non-parlour type, 12 houses at £487; (b) parlour type, four houses at £530, and a similar number at £545 and £558.

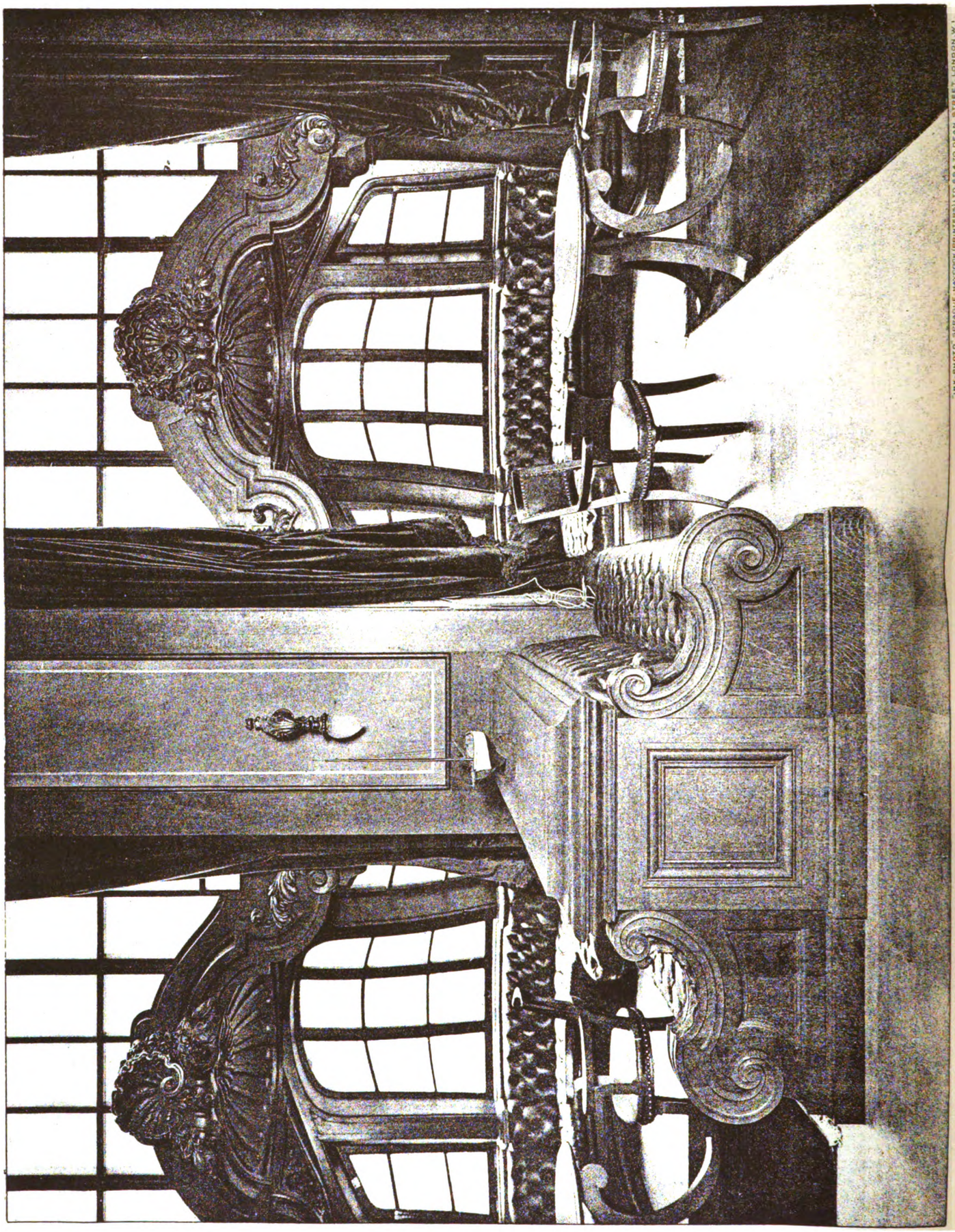
The annual general meeting of the Glasgow Institute of Architects was held in the rooms of the Institution of Engineers and Shipbuilders, 39 Elmbank Crescent. The retiring president, Mr. Wm. B. Whitie, occupied the chair. Mr. James Lochhead, Hamilton, was elected president for the ensuing year, and the vice-presidents elected were: Messrs. Andrew Robertson, George A. Paterson, and Lieut.-Colonel J. Maurice Arthur, C.M.G., D.S.O., Airdrie. The council for the ensuing year is as follows: James Lochhead, James Salmon, Robert Wemyss (Helensburgh), Wm. B. Whitie, Jas. H. Craigie, Colin Sinclair, John B. Wilson, G. A. Paterson, Andrew Robertson, John Watson, James Miller, A.R.S.A., L. H. Ross, A. G. Henderson, J. M. Arthur (Airdrie), J. A. T. Houston, H. E. Higgins, Jas. M'Nab, J. A. Wilson, Wm. Cowie (Ayr), Wm. J. Blain, E. G. Wylie, and G. A. Boswell. Mr. C. J. MacLean, writer (of Messrs. Fyfe, MacLean & Co.), 21 West George Street, is secretary.

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WINDOW ALCOVES IN THE MODEL-ROOM: CLUB-HOUSE OF THE NEW YORK YACHT CLUB, 44TH ST., NEW YORK, N.Y.
WARREN & WETMORE, ARCHITECTS.

From *The American Architect*.

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THE GRILL-ROOM: CLUB-HOUSE OF THE NEW YORK YACHT CLUB; 44TH ST. NEW YORK, N. Y.
WARREN & WETMORE ARCHITECTS

From *The American Architect*

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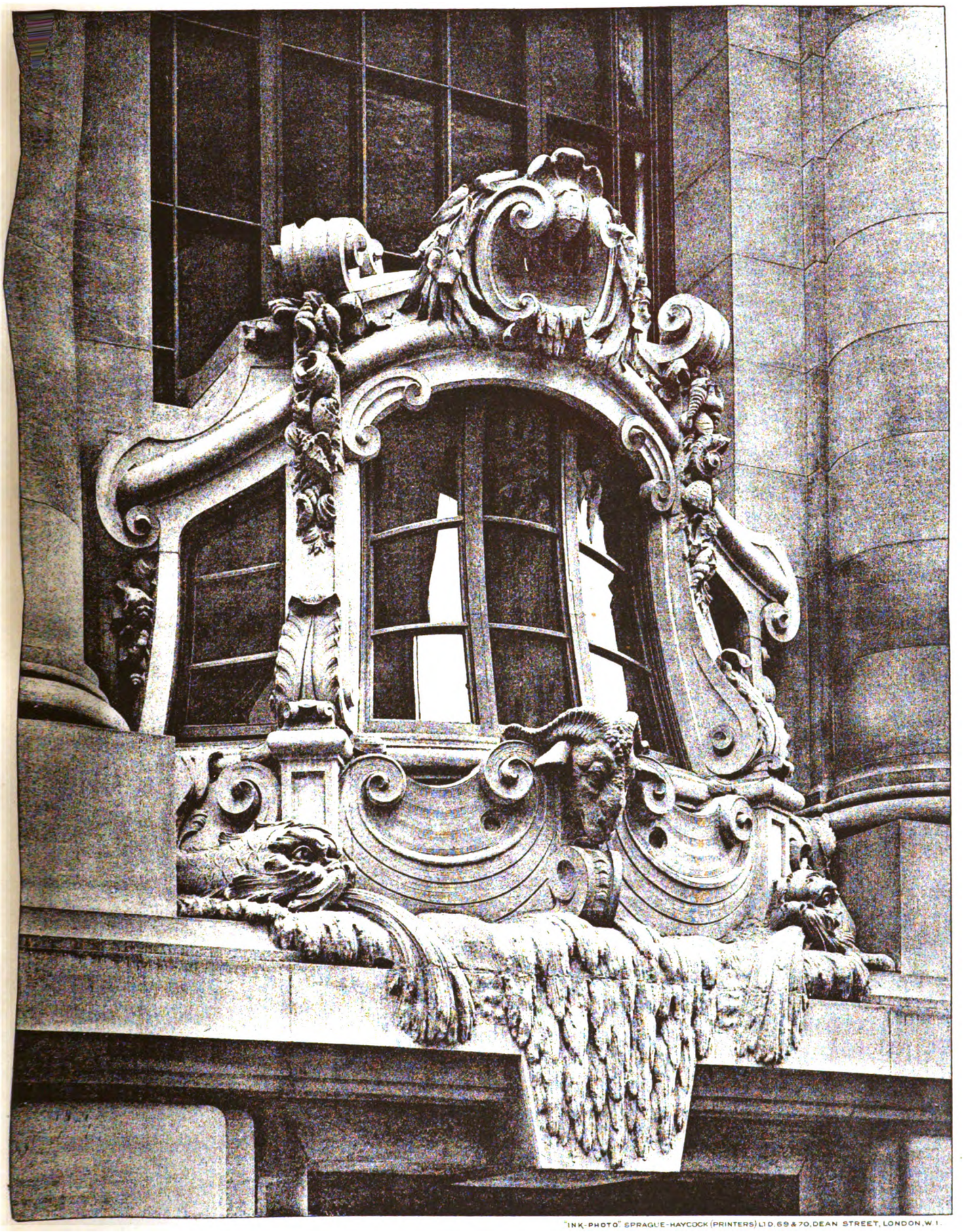
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DETAIL OF MAIN WINDOWS: CLUB-HOUSE OF THE NEW YORK YACHT CLUB.

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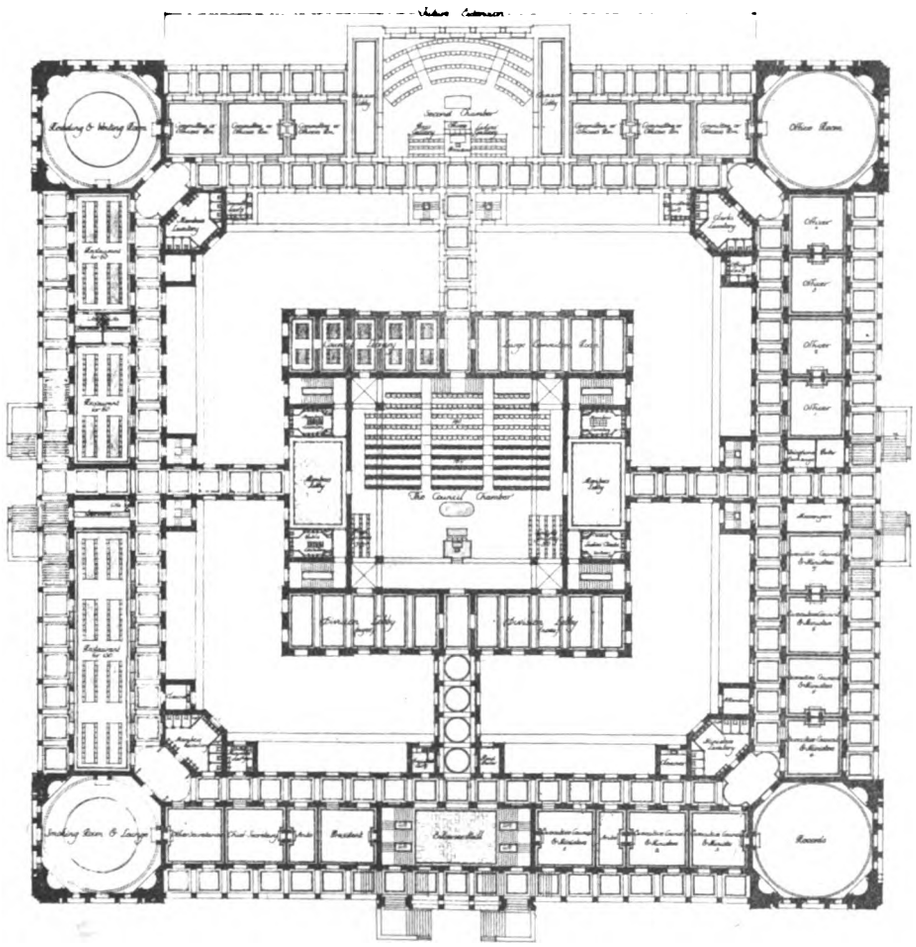
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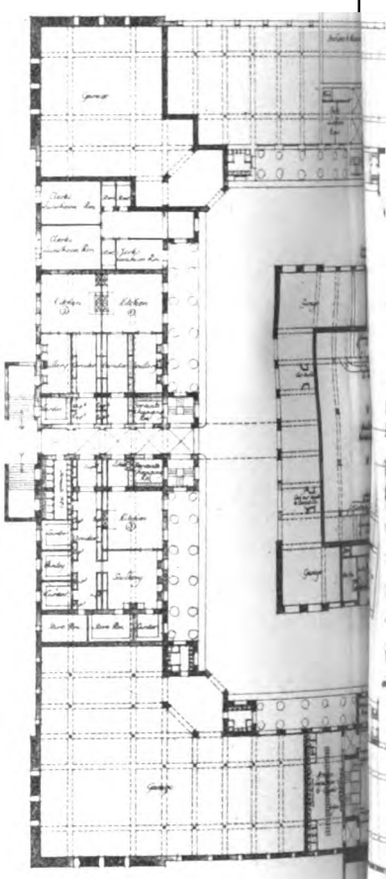
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BENGAL COUNCIL

LOWER GRO

GROVND FLOOR PLAN





BENGAL COUNCIL

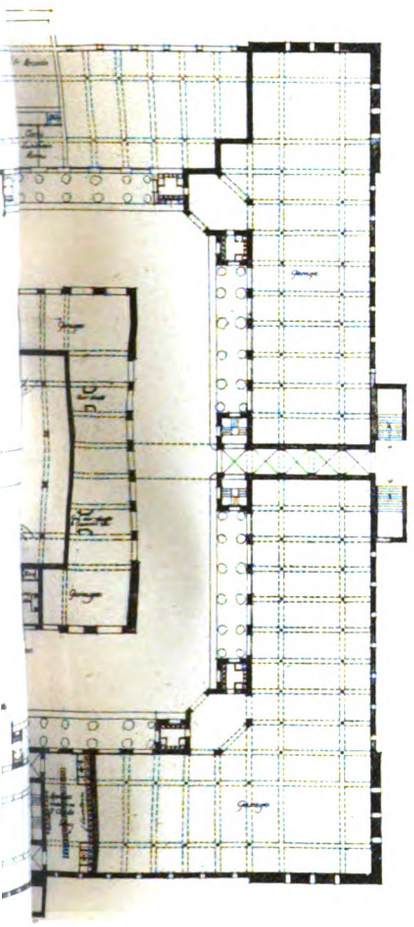
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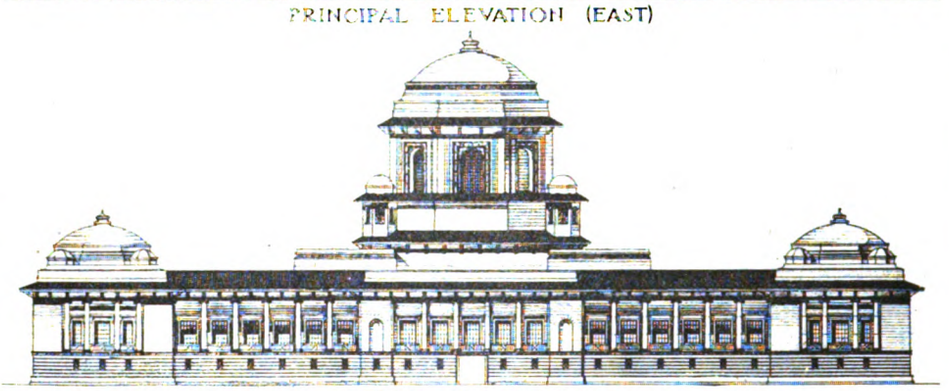
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LOOR PLAN

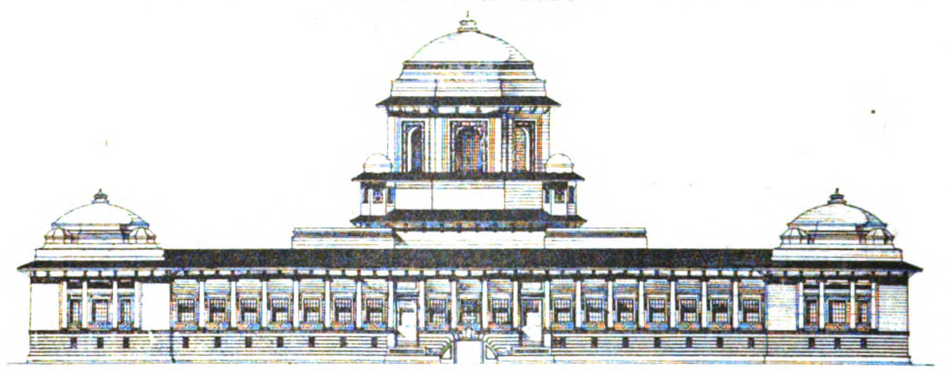




PRINCIPAL ELEVATION (EAST)



WEST ELEVATION



NORTH & SOUTH ELEVATION

Scale of feet.

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ER COMPETITION.

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Modern Methods in Building Construction.—VIII.*

By Albert Lakeman, M.S.A., M.C.I.

SURPLUS SOIL TRANSPORT AND STEAM-DRIVEN WAGONS (*cont.*)

A well-known type of steam-wagon is the "Clayton," made by Clayton Wagons, Ltd., of Lincoln, and some particulars of this type should be of interest. The most useful model to a contractor will be that fitted with either an end-tipping or side-tipping body and capable of carrying a load of 3 or 5 tons. The illustration in fig. 38 shows a 5-ton "Clayton" fitted with end-tipping body, and this standard body is 10 ft. long, 6 ft. 6 in. wide, and 2 ft. deep, but a body 3 ft. 6 in. deep is also obtainable. The sides in the standard design are made fixed, but if required the makers can supply the movable type. The drive for the mechanically operated gear is taken from the end of the crank-shaft by means of bevel gears to two vertical screwed shafts with swivel nuts.

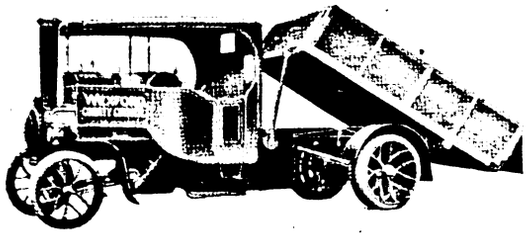


FIG. 38.—5-TON "CLAYTON" STEAM WAGON WITH MECHANICALLY OPERATED END-TIPPING BODY.

Hand-operating gear only is supplied when required, but it is doubtful if this will recommend itself to many users, as the mechanical operation will result in saving of time.

The side-tipping type of wagon is illustrated in fig. 39, and this will prove very useful under many conditions, as it is arranged to tip on either side of the vehicle, and this leaves the road behind clear for backing away if necessary. The inside sizes of the body are 10 ft. 8 in. long, 6 ft. 6 in. wide, and 2 ft. deep. The tipping mechanism consists of two extra strong screws with nuts engaging with brackets secured to the under side of the body, the latter being on rollers, which engage in inclined channels during the process of tipping.

This firm claim that their wagons can be operated very economically, and the running costs as worked out by them up to May 1921 are given in the following table.

In the case of the 3-ton "Clayton" wagon doing an average mileage of 200 per week the figures are:—

	£	s.	d.
Depreciation at 15 per cent.	2	15	0
Insurance, comprehensive policy	0	15	0
Renewals	1	0	0
Tyres, at 1*d.* per mile	0	16	8
Fuel and oil	1	0	0
Licence taxation	0	12	0
Housing	0	10	0
Wages	3	10	0
Total cost per week	£10	18	8

This total cost per week is equal to 13.2d. per mile when the mileage is 200, and the cost per ton-mile $= \frac{13.2}{3} = 4.4$d.

In the case of the 5-ton wagon the cost per week for 200 miles is as follows:—

	£	s.	d.
Depreciation at 15 per cent.	2	16	0
Insurance, comprehensive policy	0	15	0
Renewals	1	0	0
Tyres, at 1½*d.* per mile	1	5	0
Fuel and oil	1	10	0
Licence taxation	0	12	0
Housing	0	10	0
Wages (one man and one boy)	6	15	0
Total cost per week	£15	3	0

This total cost per week is equal to 18.18d. per mile where the mileage is 200, and the cost per ton-mile will equal $\frac{18.18}{5} = 3.63$d. It is stated by the makers that these figures are conservative ones in the case of the 3-ton wagon, as it should be able to accomplish 300 miles per week; but it will be found as a general rule that the average mileage allowed for steam-wagons is 200, and it would not be wise, in the opinion of the writer, to increase this basis when computing costs, or the contractor will be operating without sufficient margin.

While dealing with the question of steam-wagons, mention may be made of some of the points dealt with by Mr. P. W. Robson, the Chairman of Clayton Wagons, Ltd., in a paper which was read before the Institution of Mechanical Engineers at the Lincoln meeting in July 1920, as the paper was prepared after very exhaustive inquiries, and the comparisons of cost were made from data compiled from the records of 15,000,000 ton-miles actually hauled. In making some general remarks on road transport, Mr. Robson calls attention to the fact that the method is bound to extend, because in the case of transport by railway the costs of the secondary operations of transferring goods from works or warehouse to the goods yard, possible transference en route, with a converse series of operations at destination, far outweigh the cost of the primary operations of transport by rail from town to town, and thus road transport must prove more economical, with certain limits.

Another point to consider is the time taken in passing goods from point of despatch to destination, because, if the time occupied in sending by rail is too long, then a higher transport cost will be justified by a sufficient saving in time, and also with road transport some reasonable certainty can be obtained as to the time of receipt at the destination, whereas time of delivery by rail is usually

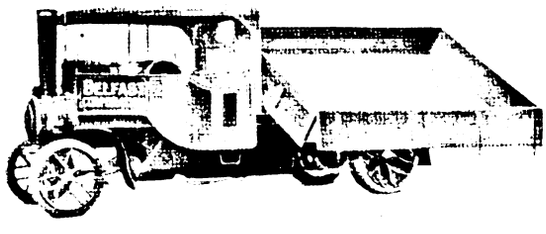


FIG. 39.—5-TON "CLAYTON" STEAM WAGON WITH MECHANICALLY OPERATED SIDE-TIPPING BODY.

an unknown factor and one which often causes a contractor considerable inconvenience.

In comparing the merits of steam-wagons and petrol vehicles the author of the paper considers that for transporting a maximum tonnage over a maximum distance in a minimum time at a minimum cost the steam-wagon takes an easy lead over its rivals. For maximum mobility with lighter loads and for special suitability for intermittent work the petrol vehicle has undisputed claims, though its working costs are necessarily higher than in the case of the steam-wagon. The electric vehicle will

* I. Introduction, Steam Shovels, Jan. 13; II. Steam Shovels (*cont.*), Trench Diggers, Jan. 20; III. Grab Buckets, Scrapers, Jan. 27; IV. Drag-line Excavators, Feb. 3; V. Derricks and Cranes, Radial Loaders, Feb. 17; VI., Surplus Soil Transport, Feb. 24; Surplus Soil Transport (*cont.*), Mar. 3.

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be applied increasingly for town work and for short-distance haulage.

These comments express the merits of the three types in a clear manner, and it is unlikely that anyone will fail to agree with the points as presented.

In the analysis of costs it is stated that the investigation covered the performance of one hundred steam-wagons by five different makers of note, and also one hundred petrol vehicles by nine leading makers. The average cost of the steam wagons for hauling 5 tons per mile worked out at 1s. 5½d., or 3.5d. per ton-mile, while the average cost of the petrol vehicle came out at 2s. 10½d. for hauling 5 tons per mile, or 6.9d. per ton-mile. These costs included all overhead charges, depreciation, interest, fuel, wages, repairs, &c., and were obtained from actual wagons at work (not on test), as they were compiled from the records kept by hauliers, &c., and these records cover over fifteen million ton-miles. The annual saving made by each steam-wagon compared with petrol was shown to be over £1,000.

The depreciation allowed in both types of vehicle was 12½ per cent., although it may fairly be claimed that the depreciation of the petrol type will be greater than the steam type. There are many steam wagons ten years old and over in constant and reliable service at the present time, and the author stated that the City of Westminster had in use at that time three steam-wagons which were all twenty years old, and which had been in regular service for the whole of the period. It was found during the investigation that, while the average performance of each type of steam-wagon gave steadily consistent figures, those in connection with petrol lorries varied very widely, and it would seem in consequence that the latter are more sensitive to varying factors in running conditions, and also on the state of their repair and general adjustment. It is not proposed to enter into all the details of the construction of the different types of steam-wagons in this article, as the results obtained are the chief interest to the contractor, and anyone who is desirous of going into these details is advised to obtain a copy of the paper read by Mr. Robson, as they are dealt with therein.



FIG. 40.—MANN'S SIDE-TIPPING STEAM WAGON.

A very good example of a side-tipping steam-wagon is that illustrated in fig. 40, this being made by Mann's Patent Steam Cart and Wagon Company, Limited, of Hunslet, Leeds, and the end-tipping type made by the same firm is illustrated in fig. 41. In the case of the side-tipping type it will be seen that at the back and front of the body the frame carries a steel "A" upright, with two pulleys at the top. The chain passes over these pulleys, and is wound by a longitudinal shaft, so as to raise whichever side is required. The ends of the chain pass through brackets under the wagon floor, and there is a balance weight at each end of the chain to take up the slack on the tipping side.

In the case of the end-tipping wagon, the gear consists of a pin rack, which is operated by a toothed pinion, the teeth of which run between the pins of the rack. The pinion in turn is operated by a worm, which can be turned either by hand or by the power of the engine through a friction clutch and driving chain. The makers claim that this form is superior to any type of screw gear owing to the ill-usage which tipping wagons undergo, and they state that these racks can be knocked about and bent or blocked up with dirt, and yet the gear will continue to function. Owing to the use of a worm it is

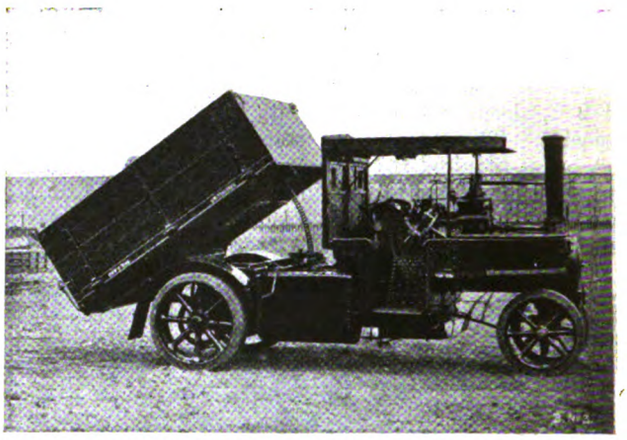


FIG. 41.—MANN'S END-TIPPING STEAM WAGON.

non-reversible and safe, and the power-tipping gear can be operated by hand on any occasion when the engine is not under steam. Both types of tipping wagons are available in either the three-ton or five-ton capacity, and wooden or steel bodies can be obtained.

The approximate weekly cost of working the "Mann" wagons as prepared by the makers is as follows:—

	3-ton Wagon £ s. d.	5-ton Wagon £. s. d.
Depreciation and repairs (20% of cost, less rubber tyres)	3 4 0	3 10 0
Rubber tyres (estimated life 10,000 miles)	0 15 0	1 0 0
Drivers' wages	3 10 0	3 10 0
Fuel	2 0 0	2 10 0
Oil, stores, &c.	0 10 0	0 10 0
Insurance	0 10 0	0 10 0
Total weekly cost	10 9 0	11 10 0

Based on the foregoing, and assuming that the wagon does 200 miles per week with the full load, the cost per ton-mile will be 4.18d. for the three-ton wagon, and 2.76d. for the five-ton wagon. The makers state that the cost per ton-mile will obviously vary with the conditions of work for each individual user, and the figures are given as a guide to enable each owner to estimate the cost of his own work on the assumption that the wagon will be properly handled and looked after. It will be noticed, however, that the average of these two figures is 3.47d., which is very close to the average cost of 3.5d. per ton-mile, which was previously given as the result of the investigation covering the performance of one hundred steam-wagons by different makers.

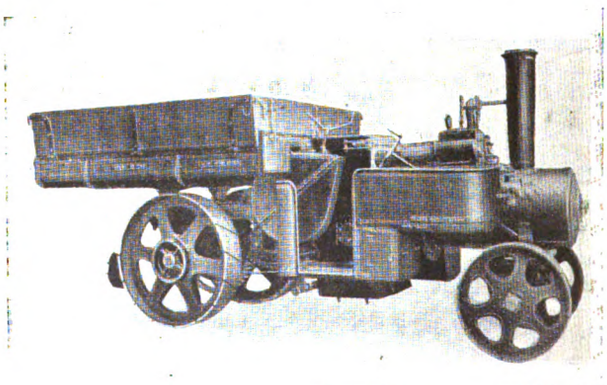


FIG. 42.—STEAM TIPPING CART.

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While dealing with the vehicles made by Mann's Patent Steam Cart and Wagon Co., mention may be made of their steam tipping cart, illustrated in fig. 42.

The first motor vehicle made by this firm was a steam-cart, and its special advantages for certain kinds of work have been responsible for its retention, in spite of the development of the steam-wagon.

Its outstanding points as compared with the wagon are its larger and wider wheels for travelling on rough ground, its short-wheel base, which enables it to get into confined places, and its general compactness and strength. It is the mechanical equivalent of a horse-drawn cart, and for hauling road metal, bricks, sand, &c., and for rough contractor's work; the makers claim that it possesses just the same advantages over a steam-wagon as a horse-drawn cart does over a dray for these purposes. The stoking and all controls are conveniently place, and it is essentially a one-man machine, and two speeds are provided, the slow being an extremely powerful one, which enables it to climb steep hills and get out of bad places.

When required it can be fitted with governors, and from the fly-wheel will drive a saw bench, stone-crusher or mortar-mill, while it can also be equipped with a winding drum and steel-wire rope, and it is, therefore, a very useful machine. Various other types of vehicle

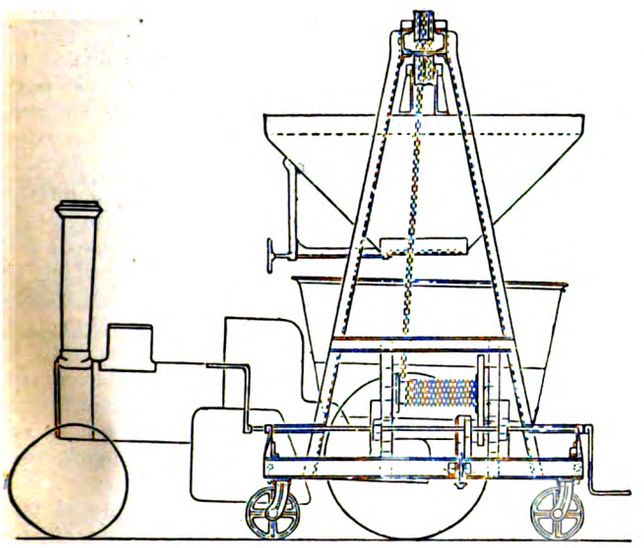


FIG. 43.—MANN'S PATENT PORTABLE LIFTING HOPPER.

are made by the firm, but it is not possible to deal with them all in this article, but the patent portable lifting hopper, illustrated in fig. 43, is worthy of notice. This has been specially designed to prevent the steam-cart or -wagon standing idle, while it is being filled by shovels. Owing to the large capacity of the vehicle it will take a long time to fill by hand, and the hopper, which is of approximately the same capacity as the body of the vehicle to be loaded, is lowered to a convenient height, filled by labourers during the time the steam-cart is away, and hoisted into position ready for the cart to be backed under it upon its return. There is a sliding door in the bottom of the hopper for discharging the contents, and it can be worked by the driver without leaving the footplate.

The hopper is mounted on wheels so that it can be pulled from point to point by the engine, four drag shackles being provided for that purpose, and it is bolted together in convenient sections so that it can be readily dismantled for transport from one site or yard to another. The use of this hopper will frequently allow twice as many journeys to be made and thus double the number of tons hauled by the vehicle in one day.

The steam-wagon illustrated in fig. 44 shows the "Foden" end-tipping type made by Messrs. Fodens, Ltd., of Sandbach, and it is claimed that considerable economy can be effected by the use of these wagons for

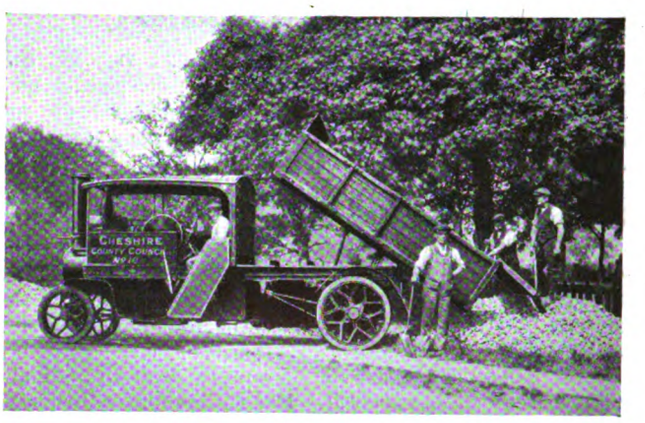


FIG. 44.—FODENS, END-TIPPING STEAM WAGON.

general hauling. The Cheshire Asylum Visiting Committee, in a report dealing with a recent purchase of a "Foden" wagon, stated that the conveyance of coal, stores, &c., at local rates of cartage for a period of thirty-nine weeks worked out at £1,140 8s. 11d., whereas this haulage only cost £638 0s. 9d. when done with the steam-wagon. The cost of running the wagon for this period was made up in detail, and is here given as an illustration of the operating and standing charges prepared by the owner:—

Cost for 39 weeks—	£	s.	d.
Wages	294	17	3½
Fuel	52	10	2½
Oil and grease	17	17	7
Repairs, &c.	4	2	11
Insurance (9 months) and licence (3 months) ...	20	8	9
Depreciation at 20 per cent. per annum	198	12	0
Interest at 5 per cent. on capital outlay	49	12	0
Total	£638	0	9

The total haulage in ton-miles is, unfortunately, not stated, but the cost per week equals £16 7s. 3d., and if the load carried during this period was five tons over a distance of 200 miles weekly, the cost per ton mile would be 3.9d., which is a very reasonable figure.

The 5-ton end-tipping wagon made by this Company is capable of carrying a load of 4½-5 tons at eight to ten miles per hour, and ascending gradients of 1 in 7 on good roads, while with a trailer the load will be from 8 to 10 tons, and the speed 5 to 6 miles per hour. The body is built of timber, the size of the platform being 10 ft. long and 6 ft. 6 in. wide, with sides 2 ft. deep, and detachable top-boards 12 in. deep are also fitted.

The tipping is accomplished by hydraulic tipping gear. The side-tipping wagon is similar in many respects, with modifications in the size of the platform and tipping gear as required. A side-tipping trailer made by this firm is illustrated in fig. 45, and this will prove a useful piece of equipment to the contractor who has to haul large quantities of building materials over long distances.

(To be continued.)

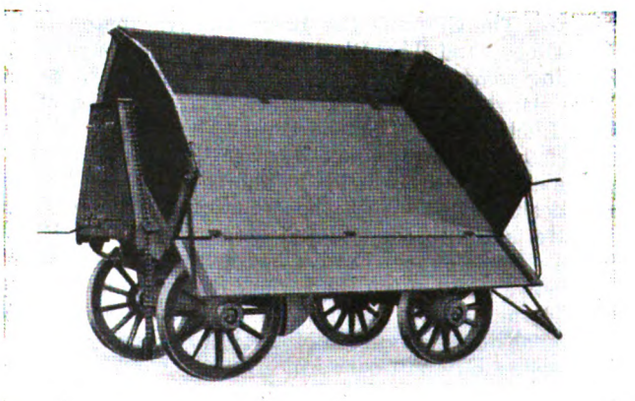


FIG. 45.—SIDE-TIPPING TRAILER (mounted on springs).

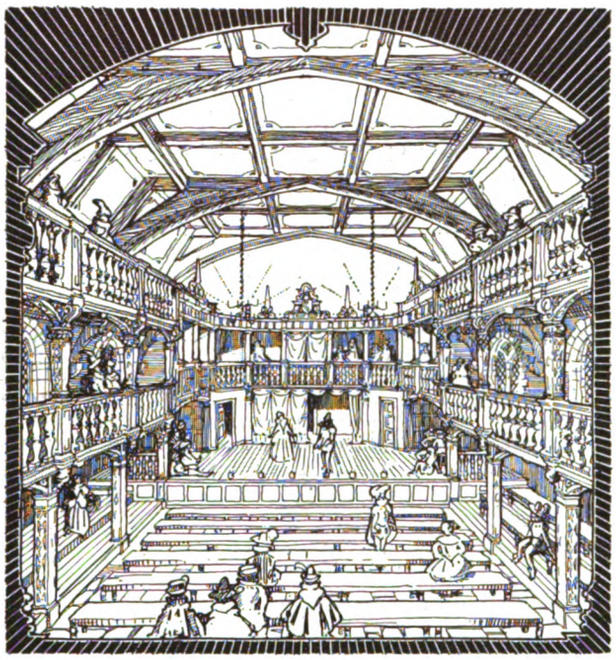
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Early London Theatres.

Mr. G. Topham Forrest, F.R.I.B.A., F.R.S.E., the architect to the London County Council, delivered a lecture at the London University (Birkbeck College) on Friday, the 3rd inst., on "The Early London Theatres with which Shakespeare was associated and the extent to which they fostered the poet's genius." Sir Sidney Lee presided, and in introducing the lecturer referred to the London County Council's publication dealing with the site of the Globe Theatre, and particularly to Mr. Topham Forrest's excellent contribution to that publication in regard to the architecture of the famous Globe building.

Mr. Topham Forrest in his lecture dealt first of all with the extent to which the Early Playhouses fostered the poet's genius. He pointed out how that the existence of the fixed playhouse had affected in a very remarkable degree not only the quality but even the quantity of the

BLACKFRIARS THEATRE



CONJECTURAL RECONSTRUCTION *by G Topham Forrest*

plays written by Shakespeare. It was practically certain that if the actors had had no fixed playhouse in Shakespeare's time when a type of play more suitable to the temporary stage of an Inn Yard would have been the result, and there would not have been the same necessity for writing new plays as there was in the playhouse where the audiences demanded frequent change of plays.

The existence of other playhouses, moreover, created the element of competition which also influenced the quality and number of plays produced by Shakespeare's Company.

The lecturer then discoursed upon the actual playhouses with which Shakespeare was associated—The Theatre, The Curtain, The Rose, The Newington Butts, The Globe, and The Blackfriars. By means of slides showing some of the old Inns of London, such as the Belle Sauvage, The White Hart, &c., and also of the Van Buchell sketch of the Swan Theatre he indicated the kind of theatre which Burbage designed and afterwards erected in the Fields of Shoreditch. The lecturer also dealt in detail with the architecture of the Globe Theatre and with the site and description of the Blackfriars. Mr. Topham Forrest had evidently made a very exhaustive study of the Blackfriars Records (published by the Malone Society) and from the data, often very vague, he was able to show a plan of the Priory Precincts. The Records contain particulars of a Survey carried out by a certain Hugh Losse, the King's Surveyor, in 1549 and 1550. This Survey gives the principal dimensions of the church and conventual buildings. Most of these are referred to as lodgings and tenements, and in order to prepare the plan of the priory great care had to be exercised in deciding the original use of the buildings in question. Beginning with the church it was possible to make a general plan from the dimensions given. Next came the question of the position of the cloister, which is stated to have been 110 feet square. The Records showed that the buttery formed the western boundary of the cloister, and an old lease dealing with the tenements in the northern end of the buttery fortunately left no doubt as to the extent to which this building abutted against the church. A kitchen yard is also described in the Records. It was on the west of the building and extended westwards to Water Lane, a distance of 84 feet.

To the south of the Buttery was a building of somewhat remarkable size—viz., 110 ft. by 52 ft. This was known as the Upper Frater. The Privy Council met in this building in the fifteenth century; and in the years 1450, 1523-24, and 1529 Parliament met there, hence it is sometimes referred to as "The Parliament Chamber." It was here too that Henry the Eighth's divorce suit against Catherine of Aragon was heard in 1529.

This was the building in which Burbage constructed the famous Blackfriars Theatre.

Having prepared a plan from the data given in the Records, Mr. Topham Forrest compared it with the old maps of London, and obtained striking confirmation of its accuracy from Ogilby's Map dated 1677. On Ogilby's Map several sites are indicated as being vacant at the date of the Survey. Two of these coincide in position and dimensions with the site of the west part of the Conventual Church (the east part of the Church had been used as tenements, and these doubtless were rebuilt soon after the Fire of London), and of that portion of the Upper Frater which had been converted into a theatre. Further, the distance from Water Lane along the southern boundary of what is now Playhouse Yard is shown on Ogilby's Map to be exactly 84 ft., which is the exact width of the Kitchen Yard as described in the Blackfriars Records. Further, on Ogilby's Map the length of the King's Printing House, together with a passageway on the western side of that building, is exactly 110 ft., the width of the Cloister; and measuring from the King's Printing House to the northern limit of the houses against the south aisle of the Church the distance is also 110 ft., the depth of the Cloister.

Mr. Topham Forrest has also made a study of the architecture of the Upper Frater and the nature of the alterations carried out by Burbage. The result of this study was the preparation of plans and sections of the Theatre. The drawing which we publish in this issue indicates very clearly Mr. Forrest's idea of the interior of the famous theatre for which Shakespeare wrote, and in which possibly he himself acted.

The lecture was attended not only by the University students, but also by many members of the public, including well-known Shakespearean students.

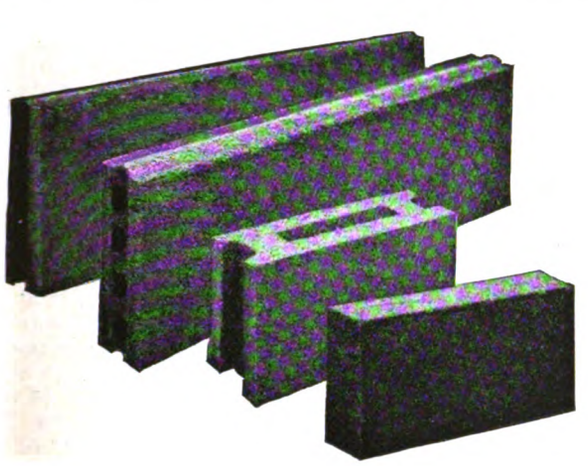
It is proposed to erect a new cinema at Swinton, near Rotherham. The architect is Mr. P. A. Hinchliffe, F.R.I.B.A., 14 Regent Street, Barnsley, and 19 St. James' Street, Sheffield.

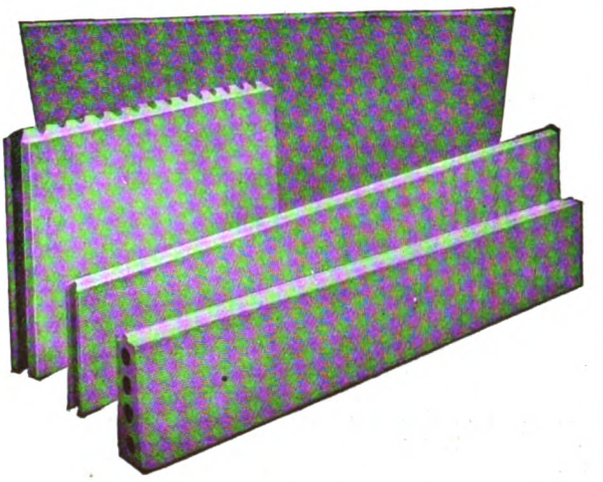
Messrs. Henry Sandell and Sons, timber merchants, of Crown Timber Yard and Saw Mills, Cornwall Road, Lambeth, London, S.E., have been registered as a limited liability company, the control of the business will remain exactly as heretofore, the only alteration being the word limited at end of their name.

The Chelmsford St. Mary's (Cathedral) Parochial Church Council has given approval to a design for a bishop's throne to be placed in the sanctuary of the cathedral as a memorial to the late Bishop Johnson and Mrs. Johnson. It will be constructed of wood, 30 feet in height, and placed in the same position on the north side of the sanctuary as the present throne occupies. Sir Charles Nicholson, diocesan architect, who prepared the design, has arranged it in such a way that the throne could be moved when the enlargement of the cathedral is carried out. The cost, about £750, is already provided by the Bishop Johnson Memorial Fund.

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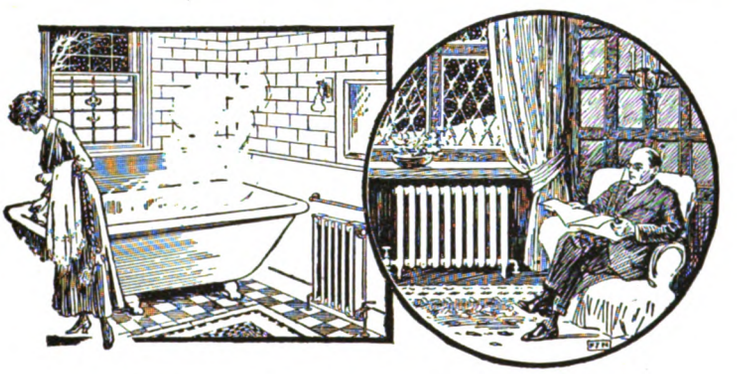


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Welwyn Garden City, Herts.

Field-Marshal Earl Haig opened the "Daily Mail" model village at Welwyn last week. It may perhaps be well to make it clear at this point that our enterprising contemporary is interested in a comparatively small portion of what the organisers hope to be a self-contained entity of 50,000 inhabitants. The population at present is 1,100, and it is expected to total 2,000 in July. The estate is on the Great Northern Railway main line, and twenty-one miles from King's Cross. Only the central part of the estate, which rises to 420 feet above sea-level, will be developed, the rest being reserved as agricultural and park land. Definite areas have been allocated to residential, commercial and other purposes. After payment of a maximum dividend of 7 per cent., any surplus profits of Welwyn Garden City, Ltd. must be used for the benefit of the town. The same remark applies to the large departmental stores, the public services, and the model dairy farm. It will be seen that Welwyn is an extremely interesting study as a satellite town. Mr. Louis de Soissons, A.R.I.B.A., S.A.D.G., is the Company's architect.

The "Daily Mail" village is intended as an integral part of the Ideal Home Exhibition at Olympia.

Cottages have been planned and erected to give the maximum accommodation and size permitted to rank for State financial aid under the Housing Act of 1919, and the amount of land allotted to each was also determined by the provisions of that Act. The village at present consists of forty-one cottages, which represent sixteen different systems of housing construction. Many of these are open to inspection by visitors, and are practical exemplars of the efforts towards the Ideal Home. Some of the ideas may prove in daily practice to be a delusion and a snare, but there should be a substantial benefit from these full-size experiments in economical housing.

Ideal Home Exhibition, Olympia.

The organisers of the present exhibition at Olympia place first on their list of "Features" the Royal Gardens in the Annexe. There is certainly nothing to rival them. Of course a dyspeptic critic might argue that such ideal gardens would require a super-ideal purse. But, though they may not be attainable by the many, there can be no harm in spurring the imagination of the amateur surburban gardener as he pauses in his Lilliputian work on rockery, flower-bed, and lawn. If he be a true follower of the craft there will be no envy.

The Exhibition was opened on March 1 by H.R.H. Princess Alice, Countess of Athlone, and will close on March 25. It is, of course, more frivolous than Mr. Greville Montgomery's exhibitions. (By the way, one cannot refrain from wondering why these two great similar shows do not agree to alternate years, instead of treading on each other's heels.) None the less, it is a very practical display. The following notes do not pretend to survey the whole, but are confined to a few of the technical stands which are likely to interest our readers.

At Stand 63, on the main floor, is the exhibit of Messrs. D. Anderson & Son, Ltd., Roach Road Works, Old Ford, E., Belfast and Manchester. This consists of a model farm outhouse roofed with "Rok" and timber treated with "Sidol"; also a section of a poultry-house showing the novel application of "Rok" to wooden framework, only backed by wire-netting—water, draught, and vermin proof. "Rok" roofing is made from a strong fibre base, saturated and coated with a high melting-point bitumen, thus rendering it suitable for use in all climates. It is equally adapted for flat, sloping, or curved roofs, and wood and concrete surfaces. "Sidol" is the ideal wood preservative. The rich nut-brown colour in which it is made brings out the grain of the wood. It is also made in lighter and darker shades of brown, and in green. "Hippo" roofing (also exhibited) is a cheap ready roofing for all temporary buildings; contains no tar and requires no coating when fixed. It is sold by ironmongers throughout the country. Anderson's roofings were used in the Crimean War by the War Office to shelter the troops, and have been supplied to Government Departments ever since. The amount of felt made by Anderson's yearly would circle the world.

The Australia Concrete Machinery and Engineering Co., Ltd., 606-7 Salisbury House, London Wall, E.C., are making a good display on Stand 83 of their concrete machines, including the Tonken mixer, the "Speedy" crusher, as well as of various slab and block-making appliances. They are all practical, built for strength, durability, and output.

Messrs. Boulton & Paul, Ltd., London and Norwich, have limited their exhibit on Stand 84 to water elevators. In the "Chaine-Hélice" patent the liquid is raised by means of an endless chain and spiral. This type of elevator has been sent all over the world for raising many widely different kinds of liquids and semi-liquids.

The British Roofing Co., Ltd., 150 Southampton Row, W.C., do not rely solely upon their own products to attract visitors to Stand 51. The stand itself has sides and ceiling of "Alligator" asbestos cement sheets, arranged panelwise and variously treated. The roof is of "Alligator" asbestic slate. There are also rolls of "Alligator" pure bitumen roofing felts. All these, however, might at first sight be taken as a background or setting for a remarkable show of antique furniture and objets d'art which occupies most of the space. Presumably those who come to inspect the Japanese Inros remain to order the "Alligator" goods.

Bryscom, the new building stone quarried at Draycott, Somersetshire, by the Bryscom Quarries Limited, is a conspicuous feature on Messrs. Gilliam & Company's stand in the Annexe. This attractive red stone for cottage, bungalow, church, or country house, offers unlimited scope to the architect and builder, while for the smaller fittings, such as steps and sills, Bryscom is ideal. The Rodney Stoke Inn, recently built at Draycott, is a charming example of the possibilities of Bryscom for building work. Another notable example, but this time a country mansion, is "Glencot," near Wells. At this Exhibition the stone is being shown with the finishes applicable for building work. It is to be noted that it is not necessary to use stone on the inside of a wall; it can have a brick or slab backing, so making a sound job architecturally when bonded by one stone in every superficial yard. Thus the cost of the work may be kept down.

Carron Company, 50 Berners Street, W. 1, devote the whole of their stand, No. 117, to electrical cooking and heating appliances of various kinds. These include a circulator for supplying hot water for baths, &c., at a moderate cost. There are numerous types of electric fires as well as of domestic appliances like kettles, irons, and toasters.

The Crittall Manufacturing Co., London and Braintree, display their many well-known varieties of metal windows on Stand 58. A novelty is the application of wood wall panelling to steel frames. Fenestra panels of any desired kind of wood are fitted into metal frames and placed against the walls or as temporary cross partitions. Glass or asbestos sheets may replace the wood where a transparent or fire-resisting material is wanted. The effect is decidedly interesting, and the idea is well worth investigation.

Cuirass Products, Ltd., 69 Victoria Street, S.W., demonstrate on Stand 67 the waterproofing qualities of their No. 6 Liquid Proofing, which can be brushed on cold to asphalte, concrete, felts, zinc, gutters, &c. The same roof model also shows Cuirass No. 18 Putty, a compound for wide cracks or vertical joints or where a liquid is not practicable.

Ferodo, Ltd., Chapel-en-le-Frith, on Stand 69, have added to their lengthy list of goods an improved quality fibrous flooring called "Feroleum," in which are combined "Ferodo" for wear and rubber for resilience. "Ferodo" (cotton and asbestos specially woven and treated with chemical solutions) has for some years occupied a secure place for friction linings of brakes and clutches, for stair-treads, and nosings.

Sidney Flavel & Co., Ltd., Leamington, are naturally proud of their long lineage. The fact that a Flavel established the business over a hundred years ago must place them amongst the very oldest aristocracy of their craft in the world. A Flavel is still the managing director, and anyone who has met him will feel that the same energy, courage, and enterprise is inspiring the firm as must have been exhibited by his ancestor in the days of George III. Stand 91 is convincing testimony that their manufactures have kept pace with the times. Speaking personally, though, we would sacrifice any of their latest gadgets to such a testimonial as this: "This range of yours here has been in use some seventy-nine years, and is still very good. Please send me three false bottoms as last." Flavel's kitcheners first began to collect prize medals at the Great Exhibition of 1851; one of their most recent was that of the Royal Sanitary Institute Exhibition of 1921. One of their latest manufactures is the "Leamington" parlour-oven grate, which has been on the market about a year with very considerable success. The stand also includes some very

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handsome Period dog and hot grates, as well as gas cookers, fires, and radiators.

Messrs. W. H. Gaze & Sons, Ltd., Kingston-on-Thames, appeal in the Annexe to both the garden-lover and the tennis enthusiast. For the first there is a remarkable display of such accessories as figures in lead and stone, furniture, and summer-houses on a delightfully arranged stand (Nos. 7 and 8); for the other there is a miniature "All-Weather" hard tennis court. This latter is constructed of a special red substance which closely approximates the resilience of good turf and has won the admiration of many experts.

The Interoven Stove Co., Ltd., 156 Charing Cross Road, W.C., can claim that more than 50,000 of their convertible cooking and heating stoves are in use, and that they have been adopted for upwards of a hundred Government housing schemes—no less than 700 "Interovens" have already been supplied to the Manchester scheme. On Stand 134 the latest, and largest, pattern may be examined. Of course, there is also to be seen the "Bewty" expanding barless front, by which old-fashioned stoves can be transformed into slow-combustion fires.

Jones & Attwood, Ltd., Stourbridge, give prominence to three of their boilers on Stand 133—namely, the "Domestikatum," the "Cultivatum" (for greenhouse and garage), and the "Batheater." There are various other heating and hot-water supply boilers. The firm are prepared to submit schemes and estimates for complete installations on receipt of plans and particulars.

Messrs. Major & Co., Ltd., London and Hull, are not afraid to perfume the rose, for they have erected a really charming stand (No. 40) to display the merits of "Solignum"—a wood preservative and stain of acknowledged super-excellence. Economy with artistic perfection is the goal aimed at and reached, whether its use be on exterior or interior work. There is now a choice of no less than eighteen colours (browns, reds, greens, yellow, and blue), and all these are here exemplified on the stand. Particular attention is, however, called to its use as a floor stain, as it does not rub off, show scratches, or wear bare, and it can be varnished or wood polished.

Quicksey Manufacturing Co., Fulwood Place, High Holborn, W.C., have on their stand, No. 38 in the gallery, several of their all-British kitchen cabinets. To a mere man these offer an amazing *multum in parvo*, and revive hope that the domestic servant problem may once more be solved. Cooking should become more recreation than work when done with the aid of a "Quicksey." The firm have other household helps on view.

Rippers, Ltd., Castle Hedingham, Essex, confine their exhibit—it is Stand 56 in the gallery—to three of their household labour-saving fitments. One is a combined dresser and table; another is a patent revolving kitchen cupboard which is divided into four sections, one being the full height for long-handled articles like brooms; a third is the "Commonsense" nursey cabinet, an adaptation of the combined dresser; and the fourth is a combined step-ladder and chair.

Samuel Smith & Sons, Ltd., Smethwick, claim for their patent "Foresight" range that, while using 50 per cent. less coal than the ordinary range or oven grate, it is more reliable for cooking, and can always be depended upon for hot water. A visit to Stand 129 will convince anyone as to the many excellent features of this combination. It is easy to understand its popularity for housing schemes. The work of converting it from a kitchen range to an open sitting-room fire is the work of a few seconds.

William Duncan Tucker & Sons, Ltd., Lawrence Road, Tottenham, N., as the largest horticultural builders in the United Kingdom, are appropriately represented on Stand 9 in the Annexe by greenhouses and frames. The firm was established in 1830, and have built up an unassailable reputation for quality both in this class of work and in joinery and mouldings generally. Estimates for greenhouses of every description will be submitted on application.

On the "Winget" Stand (No. 65), among other novel features is demonstrated the system of concrete block construction by means of which some of the houses are now being built in the Daily Mail Model Village at Welwyn. No two blocks are exactly alike in colour or texture in this type. There are working examples of various concrete block, brick, and tile making machines, including the No. 3 "Winget" pressure machine. The Stand also includes both crushers and crushing rolls, as well as the standard chain-spade machine for semi-wet mixing. The "Winget" Stand is completed with the "Dekko" portable conveyor.

Moorwoods Limited.

The present tendency of many of the big trade firms to move out of the crowded City of London to more spacious quarters on the south side of the Thames has been often noted. One of the most recent instances is the important Sheffield firm of Moorwoods Limited, who have come to 14 Chicheley Street, Belvedere Road, S.E., from Queen Victoria Street. At their new home they have more elbow-space for fine showrooms and offices. These are to be opened on Monday, March 20; and the house-warming, to which all architects are invited, will continue during the five following days. Chicheley Street may be approached from the north, either over Waterloo or Westminster Bridges—it lies rather nearer to the latter, and overlooks the new County Hall. The premises have been remodelled, and almost rebuilt, and now afford an excellent setting for the firm's high-class manufactures.

There is more than one showroom, but the visitor will probably be most impressed by the arrangement of the principal one on the first floor. Here artistic restraint and business organisation are evidenced on every hand. The commodious floor space is divided into several top-lighted bays, each illustrating some particular class of grate, interior range, or similar equipment. Consequently, it is possible to make a selection of what is sought, say Period dog grates, without distraction. The would-be purchaser of a cottage register will not be confused by the intrusion of expensive suites. Particular care has obviously been taken with the backgrounds and floor coverings to set the goods off to the best advantage. Thus the carpets are of a neutral colour. The same thoroughness and good taste is exemplified in the designs. The firm can here show everything in the way of grates as required from the nobleman's mansion to the workman's dwelling. Other bays on this floor are for displaying cast-iron registers, kitchen combination grates, and portable ranges, and boilers. There is, however, throughout an absence of that overcrowding which is too usual in showrooms.

In a room below is a fine display of cooking apparatus for hotels and restaurants in coal, steam and gas. Also an oil-fired double-oven range designed for ships' needs. It may here be mentioned that the manufacture of cooking apparatus for ships' service has become an important feature of Messrs. Moorwoods' business. Among the ships of our Royal Navy which they have equipped are H.M.Ss. "Neptune," "Queen Mary," "Renown," "Queen Elizabeth," "Malaya," and "Royal Sovereign." The firm has been no less successful in big kitchen installations on land, which call for special design and an expert staff.

The plans of proposed alterations and additions at the Paisley Victoria Eye Infirmary were passed at the last sitting of the local Dean of Guild Court. The cost of the scheme is to be between £5,000 and £6,000.

A town's meeting at Scarborough has overruled the approval given by a meeting of subscribers to the local war memorial to a design for an obelisk 68 feet high proposed to be erected on Oliver's Mount at a cost of £6,500. It was decided to prepare other schemes for a memorial, and that the site should be St. Nicholas's Cliff.

A provisional contract for the sewers in connection with the reconstruction of the town of Salonika has been secured by a British firm of contractors and engineers—Sir Robert McAlpine & Sons, Ltd., of London—the "Industrial Daily News" learns. The sum involved is about 17,000,000 drachmæ, or approximately £180,000 at the present rate of exchange. This contract, it is added, relates to the restoration of the central portion of the town, which was totally destroyed by fire in 1917. Some 200 acres of new streets and buildings are to be constructed. A scheme has been prepared by British and French experts for the complete rebuilding of the city on the most modern lines.

At the meeting of the officers of the Concrete Institute, Denison House, Westminster, last week, to consider the proposal for the removal of the recently discovered ancient arch under London Bridge, dating back to 1176, a resolution was passed expressing the opinion that the arch should be preserved in its present position and pledging the meeting, if necessary, to appeal to the public for the necessary funds. It was also agreed to ask the architect in charge of the new building, Sir John Burnet, and the owners to delay the beginning of operations for a certain period. The cost of preserving the arch would, it was stated, probably be £7,000. The London County Council had refused to have anything to do with it on grounds of expense, but it is believed that other funds might be utilised, among them being the Bridge House Estates.

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The Height of Buildings.

THE Town Planning Institute has issued a very well-considered document on the subject of the Height of Buildings, which very concisely sums up the whole question and gives conclusive reasons against the relaxation of the regulations now enforced in London. As is pointed out, New York has the advantage of a clearer atmosphere, while sunlight there on account of its latitude reaches it at a very different angle. The foundations of New York rest on hard rock instead of clay and sand, while the configuration of Manhattan Island produces a state of congestion towards its southernmost end, which has no counterpart in London. Yet even with these relative advantages very high buildings are doubtful propositions financially for building owners, in spite of the fact that they are situated in streets of greater average width.

But if the skyscraper even in the most favoured situations is a doubtful proposition financially for its owners, its erection is a distinct and direct disadvantage to the lower buildings which surround it, and if these in their turn are rebuilt as skyscrapers buildings are darkened to such an extent as to involve the use of artificial light, even in the bright and clear atmosphere of New York. An instance is quoted of a very high building which was assessed in 1918 at $2,000,000, and of which the net annual return in a good year was only $4,500, so that its owner lost some $30,000 a year.

The Town Planning Institute suggests that no action should be taken until the area and powers of the new and enlarged London are settled, and that when that is done the whole area should be surveyed and divided into zones with the object of settling the heights which are appropriate, and fitting in each and deciding where, if anywhere, latitude for the erection of higher buildings should be given. This seems to us a reasonable and businesslike manner of deciding the question, and one which we hope may be taken. There are certain terminal points of vista down streets where it might be reasonable to permit the erection of high buildings; but such areas are few in number, and any permission given should be determined not only by the fact that the light of surrounding buildings would not be prejudicially affected, but by the fact that high buildings, if erected, would be a distinct architectural gain. It might be possible to line the riverside with very lofty buildings, but unless a consistent and comprehensive scheme were adopted the effect would be unfortunate, because the river front of London can be said to have no terminal point, and any great irregularity in the height of buildings along its banks would be unpleasing. If high buildings are placed exclusively in important terminal positions we should probably be within the mark in saying that there are at most only a couple of hundred positions in which such buildings might be fittingly erected, and it is a question whether any special legislation to provide for so limited a want is needed or justified. As things are we are not sure whether development is not hindered rather than advanced by the insistence on the heights now laid down for Regent Street by the controlling authorities. The cost of rebuilding is greatly enhanced by the new heights insisted on, and that at a time when money is dear, while the two lowest storeys are those which must produce the bulk of the revenue. Architecturally the new Regent Street would be more pleasing were it two storeys lower, though a great increase in the height of old Regent Street was inevitable and necessary. The new buildings along Kingsway are certainly as high as they could be without rendering the aspect of the street dreary and oppressive.

We do not know what considerations induced the Crown to fix the heights of Regent Street at their new level, but are simply concerned in pointing out that the architectural aspect of the great street planned by Nash would be infinitely preferable were the new buildings reduced to a lower level. In all cases of rebuilding there is a dead spot somewhere where the cost of rebuilding overtakes the advantages of the site, and less money rather than more is earned on the total capital expended.

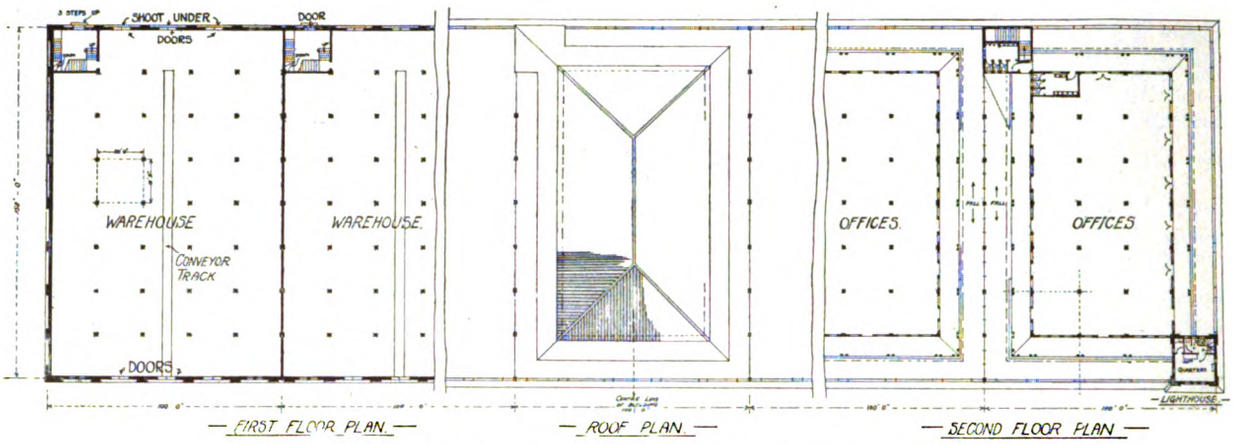
The American skyscraper is naturally a case in point; and though, as Mr. Delissa Joseph points out, there is a great difference between the skyscraper and such high buildings as he advocates, it is possible that a lower scale of heights in London may be found more profitable here than in America. If so we should rejoice, as there is little doubt that buildings of the size and height of the Australian Commonwealth building in the Strand are far more pleasing than are attempts to pile up greater heights. As Ruskin pointed out, every building suggests the blocking out of light and air, for which we consciously, or unconsciously, look for some compensation in the shape of pleasing architectural composition.

It is a curious fact that Mr. Delissa Joseph, who has so energetically championed the cause of higher buildings, should have been one of the opponents of the very tentative and moderate proposals of Mr. Henry T. Hare, which had for their object the prevention of the future acquisition of rights of ancient lights, for it is the law of ancient lights more than anything else which hampers the full and adequate use of building sites. Our only criticism of the proposals brought forward by Mr. Hare was that they did not go far enough, as we are convinced that nothing but good would arise from the abolition of the power now possessed by one man over the property of his neighbour, which is neither justified by common sense or expediency. We hope the present law will be amended in the near future by the abolition of the law of ancient lights and by granting permission to those who are handicapped by existing easements to buy these out within the given term in which they are allowed to run, and that at some reasonable flat rate without excessive compensation to those who have held such easements in the past. This, and not the right to erect higher buildings, is what is needed for the fuller and better development of our towns.

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Illustrations.

EXPORT WAREHOUSE. ACCRA.



EXPORT WAREHOUSE ,ACCRA. H. Bulkeley Creswell Architect.

This building is designed for a site between the land foot and the beach on Accra Harbour, for the storage of cocoa and for the delivery of the cocoa to the boats which act as tenders to ships at this port. The several warehouses are intended to be let to different firms. The building consists of two warehouse floors, with verandahed office buildings on roof and storage in basement open to the beach, for boating gear and tackle. The bagged cocoa is carried by road to the building and delivered into the warehouse direct on to the first floor, or by chutes to the ground floor. A system of the W.D. Conveyor Engineering Co.'s Slat Conveyors crosses each warehouse floor from front to back, and delivers the cocoa bags to extensions of the conveyors carried on open latticework across the beach to the water.

The design includes a lighthouse and signal station accessible from the outside of the building.

The whole of the building is of armoured concrete and concrete block construction.

Mr. H. Bulkeley Creswell is the architect.

A MOORISH ARCHWAY. From a Water Colour by Robert Burns. (By permission of the Leicester Galleries.)

WAR MEMORIAL, GRAYS, ESSEX. Alfred Cox, Architect.

SKETCHES IN BRUGES, by Miss Ruth Cobb.

Notes and Comments.

The R.I.B.A. Gold Medallist-Elect.

Mr. Thomas Hastings, to whom the R.I.B.A. Gold Medal is to be awarded this year, has long been well known in American architectural circles. He was born in New York sixty-two years ago. His first American ancestor was Thomas Hastings, a lawyer who emigrated form England to the Massachusetts Bay colony in 1640. In 1880 Hastings entered the Ecole des Beaux-Arts in Paris, and there he met John M. Carrère, and the two, on returning to America, entered the office of McKim, Mead and White as draughtsmen. They formed a partnership in 1885, and began to build the Ponce de Leon Hotel at St. Augustine, Florida. The unconventional boldness of the young architects aroused great interest in the profession, and the appropriateness of the Spanish Renaissance style which they chose was generally commended. This was followed by other hotels; the City Hall at Paterson, New Jersey; the "Life" and "Mail and Express" buildings in New York City; and the Union Congregational Church at Providence, R.I. In the competition for the New York Public Library and the National Academy of Design to be erected on Morningside Heights, Hastings and Carrère were successful, and this work, on which they were engaged from 1897 to 1910, is perhaps the most striking example of their art. In town-planning and similar work Mr. Hastings has carried out many important commissions. At Washington his hand is to be seen in the Capitol extension and the Senate and House of Representatives office buildings. Among many honours which have been conferred on Mr. Hastings is to be mentioned the Légion d'Honneur.

Cook v. Page and Hider.

An interesting case on the law relating to property has recently been decided in the High Court. The plaintiff bought several plots of land on an estate at Bishop Stortford, forming part of a building estate. It was stipulated that the roads giving access to these plots should be formed by the vendors free of charge and the ditches crossing the roads should also be formed by the vendors. The defendants had the right to graze the land until it was required for building purposes.

The defendants ploughed up the estate during the war, destroying the roads and obliterating boundary marks, this being done under the sanction of the Agricultural Committee, acting under the Cultivation of Lands Order, Defence of the Realm Committee, 2 M. Mr. Justice Avory gave judgment that the vendors' contract had not been fulfilled, and dismissed the plea that the defendants were not responsible for the breach of covenant. With regard to the trespass, he came to the conclusion that the Orders of the War Agricultural Committee afforded no protection for the defendants. The defendants had nothing more than the right to graze or cut grass as long as the land was not fenced in, and so could not grant rights they did not possess to others. Judgment was accordingly given for the plaintiff, with costs, the defendants being ordered to re-make the roads and re-define the boundaries of the plots sold. This is one of the cases which are more numerous than are generally admitted where law and common sense lead to the same result.

Mr. Bligh Bond's Letter.

Mr. Bligh Bond writes us a letter in which he welcomes our suggestion that he should employ his psychic methods of investigation to solve some of the secrets of old London, and we hope that in some way or other, and by some means or other, a way may be found to put the question to the test. As we have pointed out, there may be some room for doubt as to whether the discoveries at Glastonbury were or were not the result of the processes in the efficacy of which Mr. Bligh Bond is firmly convinced or whether he has not overlooked some simpler explanation, but a repetition of results arrived at by the same methods would not be open to doubt. We can quite understand that money is needed for such a trial, and suggest that such funds would be most fittingly provided by members of the Psychical Research Society itself, while the problem to be investigated might be suggested by the Council of the Royal

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Institute of British Architects. In this manner an interesting subject would be thoroughly investigated, and if Mr. Bligh Bond's point was conclusively proved a most valuable addition to our methods of investigation would have been made. We have an open mind on the question, knowing that there are many things like the process of water-finding by means of a hazel-wand, of which we have never heard a completely satisfactory explanation, yet we know that the water-finder somehow "delivers the goods."

The National Housing and Town Planning Council.

Mr. Aldridge is still pursuing the arduous policy of flogging a dead horse. It is true that some of the Councils his Association industriously supplies with statistics betray an inclination to pass on the burden of the provision of housing to someone else by making appeals to their members, and that the Labour Party is, as always, quite earnest in its approval of any expenditure—excepting that required for patriotic ends or national security,—but these flickers of interest only show how dead the Government scheme is. It is easy to convict the authorities of a change of policy and of going back from their pledges since it is patent to everyone that they have done so. It is rather a pity that the defenders of the Government trouble to reconcile their past and present attitudes as it would simplify matters if they frankly admitted that they had changed their mind in view of facts which have been abundantly proved. If the Housing and Town Planning Council are really anxious about the provision of houses and not about political issues they would do their best to promote measures by which private enterprise could be stimulated. One of these measures seems to us to be the freeing of working-class property from the incidence of rates, at any rate for a term of years; another is to make it perfectly clear that there will be no further interference with rights of property by means of attempts to restrict rents, and in other interferences with the methods by which a man can utilise development, which his industry and energy have created, to its fullest advantage.

Mr. Aldridge tries to make capital out of the fact that the cost of building is now less than it was, but is not a considerable part of this fall due to the fact that the working man understands that his steady employment depends on his being able to give value to the employer for wages received, instead of receiving his wages from the supposed never-ending resources of the State?

The Necessity for Employing an Architect.

The "Morning Post," in an extremely well-written little article, points out that those who purchase an old cottage with a view to altering it should employ an architect to help them. It says:—

"It is almost impossible for a novice to pull about a dwelling and refit it without having professional aid. If he be a man of sound taste he may not go far wrong, except in paying the bills. But the number of men of sound taste is limited. The number who wish to pay more to the co-operating tradesman than they ought to do is more limited still. The first advantage of employing an architect is that, at the start, he will find out and set down on paper all that needs doing. The novice always underestimates the amount of work that needs doing. His alterations and repairs are a series of potterings, of one thing leading to another. Now there is only one way of keeping tradesmen's bills down. This is to order a certain amount of work for a certain amount of money, and to alter one's mind during the progress of the work, or, without a further contract, add on fresh jobs. In the second place, the architect will see that the work is done in the best way, of the right materials, at a reasonable price. In the third place, the work will be executed with some relation to the plan and style of the house, and with some degree of taste. The jobbing builder lives on his customers' conceit, on their ignorance, and on their economies which over-reach themselves.

The trouble of many people is to find their architect. The qualities of a preacher may be discovered by going to listen to him. The doctor is heard of from his patients or, if he is a specialist, from the family physician. The literary man's books and articles are in print. But the architect does not sign his work. (It is well worth consideration whether he ought not to be made to do so—on a brick, with his name moulded on it, or on a stone, with his name cut on it.)"

The writer concludes by advising that those in doubt as to whom they should call in should seek the advice of 9 Conduit Street, and we hope they will, though most men have among their friends and acquaintances some architect of whose qualifications they should be able to form some sound idea.

A Concrete Institute of Architects.

We are told by the "Evening News" that Mrs. May Cane is the first woman member of the Concrete Institute of Architects, a new professional body discovered by the enterprise of the "Evening News" reporter. Mrs. Cane had to attend to her husband's affairs as he was called away on business to South America, and, "getting a liking for it," she "continued it," adding to a matrimonial alliance the sober tints of business relations. We are told that "to be a member of the Concrete Institute a woman must have qualifying knowledge of concrete, engineering, and architecture," but we are not told what knowledge male members must possess, for we should be right in assuming that, as the qualifications for a woman member is specially alluded to, those of a man must differ. Mrs. Cane has designed labour-saving bungalows where the wardrobes are built into the walls and beds consist of wooden frames with wire mattresses between, the dressing-table also is a fixture and the bedrooms are heated by radiators. We congratulate the enterprising reporter on having discovered so much that is new and wonderful in an Institute which does not exist, and its peculiarly assorted schedule of qualifying requirements.

Mr. C. Steward Smith, F.R.I.B.A., Reading, has prepared plans for the erection of a Girls' Hostel at London Street, Reading. The cost is estimated at about £3,000.

Mr. Chas. J. M'Nair, Lic.R.I.B.A., Glasgow, has prepared plans for a large picture-house, with lounge and tea-rooms attached, which it is proposed to erect at the corner of Byres Road and Observatory Road, Glasgow. The cost is estimated at £40,500 or £46,000, inclusive of the site.

At the meeting of the Cardiff Housing Committee on the 13th inst. it was discussed whether parlour or non-parlour types of houses should be adopted in respect of another forty houses at Ely. The committee decided that twenty parlour type and twenty non-parlour type houses should be built, and a sub-committee was appointed to deal with the tenders and report.

The Carnegie United Kingdom Trust recently renewed their offer to the Birmingham Corporation of a sum not exceeding £25,000 to build and equip a model maternity and infant welfare centre. The Public Health Committee have decided to take immediate steps to avail themselves of the offer, the centre to be located in Hunter's Road, Handsworth. The maintenance of the centre will devolve upon the Public Health Department, subject to a contribution from the Ministry of Health.

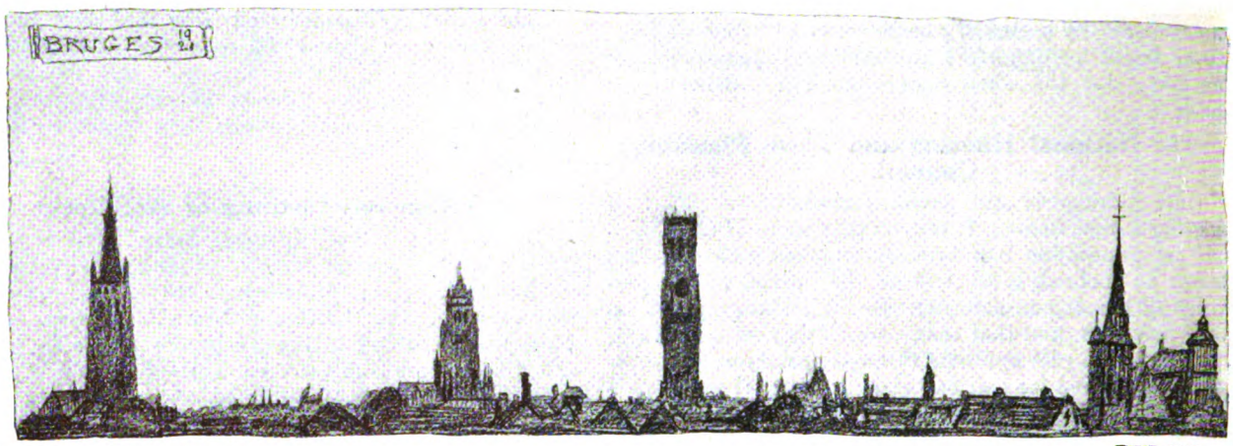
Messrs. Spottiswoode, Ballantyne & Co. Ltd., of 1 New Street Square, E.C., have erected an elaborate marble tablet in their Costs department as a memorial to the members of their City staff who made the supreme sacrifice in the Great War. The dedication ceremony, which took place on the 9th inst., was conducted by the Right Rev. Bishop King, D.D. The chairman of the company, Mr. E. C. Austen-Leigh, in a short address stated that from their London office 248 men went into the great welter. From the works at Colchester 108 men went, and from Eton 19, making 375 in all. It was proposed to place tablets in each of the branch offices. The tablet now unveiled commemorates the twenty-six men from New Street Square who nobly laid down their lives. The material used is alabaster mounted on Connemara marble. The lettering of the inscription and text is incised and gilded, and the lettering of the name panels incised and painted. The name-panels are surrounded by borders of mosaic. The carved pilasters on either side are inlaid with blue mosaic, and the carving of the caps and corbels is enriched by gilding.

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A City of Towers: Bruges.

By Ruth Cobb.

(See Inset Illustrations.)



It sometimes happens in the history of a town that an entirely unforeseen but natural cause may arise that will completely change its destiny. In England such a thing happened in the case of Winchelsea, one of the Cinque Ports. The sea receded, the river altered its course, and from having been a flourishing naval port the place became a quiet village standing on a hill surrounded by marshes.

So with the Flemish city of Bruges. It also was once a famous seaport. Now it is an inland town some twenty miles from the coast. A place of extraordinary interest at the present time, owing to the wonderful preservation of its mediæval buildings and its unique situation intersected by many waterways.

In the very beginning some tiny fishing hamlet may have stood on the spot, but it is known that the Romans built there. Probably fortifications to defend the junction of the two rivers, the Zwyn and the Roya.

The estuary of the Zwyn formed a large natural harbour, and by the thirteenth century a city had sprung up beside it that was famous as one of the great trading centres of the world. Ships laden with merchandise from east and west sailed into the port to unload their cargoes. All the great trading guilds of the time had quarters of their own in the city, and they vied with each other in building magnificent palaces to be used for their offices and representatives.

A great many of these buildings, ornamented with fine tracery, are little altered as regards their exterior; but the majority have, in the course of time, lost their most distinguishing features—their towers.

Bruges is even now a city of towers and spires, but in past days the effect must have been more remarkable, for then they rose from a far greater number of buildings. One fine specimen of a dwelling-house still has its tower in a good state of preservation. It rises in beautiful proportions above the rest of the building which was originally the headquarters of the merchants of Smyrna.

After a great many vicissitudes in its government, Bruges reached the height of its prosperity in the fifteenth century under the rule of the Burgundians. The city had been through many times of great disturbance. Constant fighting had taken place in its narrow streets between the various factions struggling for supremacy.

In spite of this its trade flourished exceedingly. Work abounded and people of many nationalities connected with its commerce could be seen in its streets. A great school of painting had sprung up, which included the Van Eycks and Memling among its members. In the early part of the sixteenth century a change began to come over the fortunes of Bruges. It had been noticed for some while that, owing to the silting of the River Roya, the harbour was becoming choked with mud, and in course of time it was no longer possible for ships of large size to enter. Merchandise from across the seas could not be brought into the city, and its trade died away. It seemed as if with the passing of years Bruges, like its smaller neighbour Damme, which was also affected by the shifting of the waters, might become, but for a new development, a deserted and decayed inland town.

There were a great many large religious houses scattered about the neighbouring countryside. These houses suffered much from the disturbed state of the surrounding land, and in consequence many of the monasteries and convents needing protection began to move into the city.

These religious confraternities were very wealthy, and they built a number of churches and monastic buildings inside the walls.

Before many years had passed Bruges had become a stronghold of ecclesiasticism, a new life began for the city that was to save it from falling into decay, and was to preserve the beauties of its architecture.

Among the many spires and towers still standing that belong to these past times the belfry forming one side of the market-place dominates the city, and is seen rising with picturesque effect above the narrow streets. The base is the original building, but the upper part has been several times burnt down and rebuilt. Above the present tower there was once a cupola, but it has not been restored since the last fire in 1741.

From the top of the tower there is a magnificent view of the neighbouring country. Here in olden days a look-out was kept, and at the warning of an enemy's approach the belfrey bells were rung calling the citizens to arms, and also to give notice of any brawls within the city walls.

A great deal of Bruges is quite unaltered since mediæval times. This can plainly be seen from the pictures of Gerard Davis and Pieter Pourbus, in which views of the city constantly appear.

There is, however, no longer any feeling of the place having been a seaport. The side of the Grand Place, which was once the chief quay, is now covered with municipal buildings, though it is still possible to trace the course of the river behind them.

Water abounds, and canals intersect the city everywhere, connecting the rivers and giving it a unique character of its own, unrivalled in Northern Europe.

One of its great beauties is due to the reflection of the buildings in its waters. Except when ruffled by the passing of boats they show undisturbed and with exceeding clearness the mediæval palaces, towers, and also houses of a slightly later date, having the sides of their gables cut into the shape of steps—a form of house that is also to be seen in Holland.

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Bridges span the canals at frequent intervals, many having not been rebuilt since they were first constructed. Some have only one arch, others two or three. Some are strong enough for much heavy traffic, while others are for foot passengers only.

A quaint bridge of this kind is that of St. Boniface, spanning the river that flows at the back of the church at Notre Dame. One end of the bridge passes into the entrance of what was once an inn frequented by mariners; a little bas-relief of a ship can be seen on its outer walls.

From the ramparts that, with a wide canal, encircle the city is to be seen the best view of its many towers and spires.

The land is flat upon which the city is built, and they rise above it, dominating the place. Some famous ones have vanished with the course of time, but noticeable among others stand the Belfry, the Cathedral, the church of Notre Dame soaring above the red roofs as they have done for many hundreds of years, calling forth visions of the past.

Correspondence.

Unification and Registration.

To the Editor of THE ARCHITECT.

SIR,—Mr. Keen states that the recent special general meeting at the Institute was "called at short notice, and with no proper case laid before the members in advance."

The meeting was requisitioned by the general body in the only possible way, under By-law 65: it was "called" by the Council, and if called at short notice it was not the fault of the League; but please note I am not complaining, for I understand the Council gave as long notice as possible.

Now as to Mr. Keen's statement that the members of the Institute had no proper case laid before them in advance. Surely Mr. Keen must know that the views of the Unification and Registration Committee have received the greatest possible publicity, that they formed the subject of the late President's address at the Liverpool Congress, that he himself spoke at that meeting, that he has written many letters to the Press, that our President has visited certain provincial centres and spoken in support of those views, and that various London men have stumped the country with the same object! Come, come, Mr. Keen, you are not doing your own side justice.

The position at the present time is apparently this. The Council say, "We have accepted the basic principle of admitting members to the Institute without examination, and before the passing of a Registration Act; but until you have details of our scheme, and we tell you how it will be done, you ought not to object." This reminds me of the polite lunatic who says "Good morning, Sir, I am going to murder you; I am not sure if I shall poison you or shoot you, but until you know how I am going to do it, it would be a most ungentlemanly thing for you to object. Au revoir."

—Yours, &c. SYDNEY PERKS.

The Guildhall, E.C.

To the Editor of THE ARCHITECT.

SIR,—I think your readers might like to know the views of Mr. Simon, and I beg to enclose a letter, with his consent, for publication.—Yours, &c., SYDNEY PERKS.

March 13, 1922.

[COPY.]

4 Alexander Square, S.W. 3,
March 1.

Dear Mr. Perks,—Please add my name to the R.I.B.A. Defence League. I believe in neither Unification nor Registration. The latter I am sure will never be granted. Engineers, large firms of architectural decorators, perhaps even builders, will oppose it. And why not? With their knowledge and experience they can do just as good work as 50 per cent. of practising architects; and how can Parliament be reasonably asked to deprive the public of the architectural services of these people, for I take it that one of the objects of Unification and Registration is to "keep our ain fishgats for our ain sea-maw."

I cannot see that the standard of architecture will be raised thereby. This can only be achieved by a more sensitive artistic conscience and desire on the part of the individual architect to spare no efforts to achieve the best that is in him. The public will appreciate this and architects in the measure in which their efforts are successful, and thus will be educated in an appreciation of architecture.

Just as in music the public of a certain town may attain to an appreciation thereof by the production of good music in their midst, so would the public be educated in an appreciation of architecture and the services architects can render if a series of buildings great and small bearing the stamp of sincerity and real architectural merit were erected in their midst. How would Unification help this desirable end?

These proposals seem to me efforts to achieve by legislation and compulsion results such as teetotalism and other "isms," which defeat their own ends.

Forgive this effusion.

Yours faithfully,
(*Signed*) FRANK W. SIMON.

Sydney Perks, Esq., F.R.I.B.A.

"The Gate of Remembrance."

To the Editor of THE ARCHITECT.

SIR,—As long as the Glastonbury experiment remains as the only widely known and published example of the recovery of lost knowledge by automatic or illuminative process through the channel of the subconscious mind, so long will it fail to secure that hold on public conviction that its exponents claim to be its due.

The question now raised by THE ARCHITECT—namely, whether the same processes might not be successfully employed in revealing some of the secrets of Old London, is one that has every right to be answered. If the process be, as the writer believes it to be, of quite universal application, then it is obviously time that some effort should be made to apply it in the public interest.

The answer is a perfectly simple one. It is purely a question of endowment of research. At present there is no scheme of endowment, either public or private, which would make such a research possible. The writer and his colleague have been approached many times with attractive proposals for local research in some of our historic centres, but in every case the lack of material support and the leisure that this would give have been the deterrent factor. The Glastonbury work has only been rendered possible by the sacrifice of all the slender resources of money and time at the disposal of the two individuals engaged on the research. These have frequently been exhausted, and a halt has had to be called.

There is now need of some concerted effort towards the endowment of this line of research, and a suggestion may be put forward as to the form it should take. In London we have at last in being a College of Psychic Science. It is at present kept going purely by the support and public spirit of one man, and is just barely paying its way. It will issue in a few weeks' time its first number of "Transactions," and the writer has accepted the position of Editor. A first-proof of the sheets comprising the editorial matter is enclosed. What this College needs now is the endowment of a Chair of Archæological and Historical Research, and the demand now made by THE ARCHITECT should stimulate such a foundation. The subsidy needed would not be a large one—merely sufficient to assure that freedom and immunity from importunate cares which alone can ensure concentrated and sustained effort.

There are already promising indications of new discoveries by the application of these psychological methods, but for the reason given they cannot be followed out to their conclusion, and cannot therefore as yet be given to the public.

One of the conditions believed by the writer to have favoured the obtaining of success at Glastonbury was the fact that by association with the place and its historical records, the mental atmosphere conducive to success was obtained. But from evidence now in the writer's hands, it is manifest that in some cases no such link of material knowledge or association is necessary. In certain favoured individuals, the power exercised does not depend at all upon the possession by the medium of any acquaintance with a place or with its history.—Yours, &c.,

39 York Terrace, FREDERICK BLIGH BOND.
Regent's Park, N.W. 1.

Trade-Union Rules.

To the Editor of THE ARCHITECT.

SIR,—One of the most gratifying pieces of information which I have read during the last few years is the following, which I have extracted from the "Times" of February 27, 1922:

"Reforms of importance to the relations between employer and worker in the American building trades are

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embodied in 'a consent decree,' which was signed at Washington by the Attorney-General, Mr. Daugherty, and representatives of the bricklayers', builders', and plasterers' international unions of America.

"The union officials signed the 'consent decree' providing that no limit shall be set (1) on the productive capacity of any workman within the working day or at any other time; and (2) on the right of employers to purchase material wherever and whenever they please, regardless of whether it is union-made or not. The unions further pledge themselves to show no favouritism or discrimination in their relations with employers' associations and independent employers."

I have been expecting that some reference to this important communication would have been made by the London contractors or by the Labour leaders, but I have not seen a word about it in the Press, and perhaps you will be good enough to insert this letter, which will, I hope, open the eyes of the public generally, and trades unionists in particular. If such an agreement could be entered into in London, the business of architects, builders, and all the ramifications of the building trade would immediately go up by leaps and bounds.—Yours, &c., WM. WOODWARD.

15 Gt. James Street, Bedford Row, W.C.1.
March 13, 1922.

Labour-Saving House Competition Fiasco.

To the Editor of THE ARCHITECT.

SIR,—I have only just seen the plans published of the premiated designs, and am surprised at the work of the assessors. What have the promoters of the competition gained by their expenditure and labour? All three premiated plans are transparent "studies" of the first premiated plan in the competition organised by the same promoters two years ago; an oblong plan with a central longitudinal diaphragm or bulkhead. The promoters asked: "What has the architect accomplished in this (labour-saving) direction, since the first "Daily Mail" competition? "Studies" of the first competition were evidently not wanted. The assessors should have set aside all "studies" of the former competition.

In a "labour-saving" competition the second premium has been awarded to a "labour-producing" laundry; competitors who introduce a "labour-producing" device in a "labour-saving" competition are certainly not entitled to a premium; neither they nor the assessors have realised what the promoters intended. The latter would be justified in discarding the award. In a dwelling which in nine cases out of ten would have to be worked by one servant, and frequently probably without one, by the mistress, or daughters, a laundry is a monstrosity.

Competitors were asked to submit two sheets of drawings, one containing the plans, the other the labour-saving contrivances; the second one is the more important of the two, as it is the very *raison d'être* of the competition. Could you devote one of your illustration pages to a reproduction of the labour-saving devices sheet submitted with the first premiated design? Also publish the competitor's report or specification?

Should the promoters organise a third competition some years hence, it should be an instruction to the assessors that all "studies" of the premiated plan of the first competition should be passed over.

It appears to me that the assessors owe the profession some explanation why they have awarded the premiums to plans which are obvious "studies." Something new was wanted. The perspectives published have no merit whatever; tree shading is not architecture, and has no association with a labour-saving competition; both competitors and assessors appear to have jettisoned the labour-saving *leitmotif*. Are the promoters satisfied? I should say not; In my opinion they are disgusted, and the assessors are responsible. The perspective of the first premiated design shows windows crowded with small panes, literally by the score. Where does labour-saving come in? It is outrageous for the assessors to award the first premium to a design in which labour-saving has been ruthlessly disregarded. In Lancashire towns, Oldham, Chowbent, and Bullock Smithy, there are two panes in each window, at most four; that is true labour-saving.

In the first premiated perspective remove the trees and the small preposterous panes—then what is left? Literally nothing except a roof; nevertheless the assessors have awarded the first premium to a set of drawings which has no claim to merit whatsoever. The promoters must realise that they have thrown their money and labour away.

Yours, &c.,
Marsden Chambers, T. SNIGTON, Architect.
Marsden Street,
Manchester.
March 9, 1922.

Forthcoming Events.

Saturday, March 18.—Architectural Association. Visit to Ken Wood, Hampstead.

—— Institution of Municipal and County Engineers. South-Western District meeting at Guildhall, Exeter, 2.30 p.m. North-Eastern District meeting at Guildhall, York, 1.30 p.m.

Monday, March 20.—Royal Institute of British Architects. Meeting at 9 Conduit Street, W. Paper by Mr. H. D. Searles-Wood, F.R.I.B.A., entitled "The Building Timbers of the Empire." 8 p.m.

Tuesday, March 21.—Liverpool Architectural Society. Meeting at 13 Harrington Street. Paper by Mr. Maurice E. Webb, M.A., F.R.I.B.A., &c., entitled "Present-Day Architectural Problems." 6 p.m.

Wednesday, March 22.—Royal Society of Arts. Meeting at John Street, Adelphi, W.C. Paper by Principal A. P. Laurie, M.A., D.Sc., F.R.S.E., entitled "The Permanency of Oil Colours." 8 p.m.

—— St. Paul's Ecclesiological Society. Meeting at 7 St. Andrew's Street, Holborn Circus, E.C. Paper by Mr. G. J. B. Fox entitled "Southwold and Blythburgh Churches." 8 p.m.

Thursday, March 23.—Concrete Institute. Meeting at 296 Vauxhall Bridge Road, S.W. Paper by Mr. S. F. Staples, M.Inst.C.E., M.I.N.A., entitled "Floating Docks." 7.30 p.m.

The "Architect" Fifty Years Ago.

MARCH 16, 1872.

HAMMERSMITH BRIDGE.—IS IT SAFE?

As the time is drawing near when Hammersmith Bridge will be crowded by thousands of people to see the Oxford and Cambridge Boat Race, we deem it our duty to draw the attention of the Bridge Committee to the state in which their property now is, and to enquire if it can safely carry the weight which will be imposed upon it on the race day. We drew the attention of the public to this question three years ago, and this had the effect of causing an engineer to be sent to inspect and report on the position of the Bridge at that time. All we now ask is, that an able engineer should be sent prior to the 23rd inst., and, according to his report, so should precautions be taken for the protection of the public. The Bridge was opened for traffic in August, 1827. It was designed and calculated for a given moving load, and this must not in any way be exceeded. It must also be remembered that it was never designed to be a "grand stand" on an Oxford and Cambridge Boat Race day; and, therefore, we hope that for the sake of the public our warning, as upon a previous occasion, will be acknowledged in time, and a proper examination made as to its present weight-carrying capabilities.

At a public meeting convened at Ammanford it was decided to proceed with the erection of a cottage hospital, as a war memorial, for the town and district. A committee has two alternative schemes under consideration, costing respectively £18,000 and £25,000.

Sir Frank Baines is the only architect on the committee of nine appointed by the Minister of Health to advise on the preliminary steps to be taken in regard to the site and planning of the School of Hygiene, which the Rockefeller Foundation have promised to provide at a cost of two million dollars.

On the advice of Sir Aston Webb, P.R.A., Sir Thomas Brock, R.A., and Sir George Frampton, R.A., the Executive Committee of the Lord Kitchener National Memorial Fund have accepted the design submitted, in competition, by Mr. Reid Dick, A.R.A., for the sculpture in the Kitchener Memorial Chapel in St. Paul's Cathedral. The design has been approved by the Dean and Chapter, and the work will proceed without delay. The architectural work is in the hands of Mr. Mervyn Macartney, the architect to St. Paul's Cathedral, and the iron gates and the grille over the recess in which the Roll of Honour of the Royal Engineers will be kept will be the work of Mr. Bainbridge Reynolds.

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The World of Art.

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The Venetian Rooms at our National Gallery, which have been closed since the beginning of the war, were reopened to the public on Tuesday, March 7, and the directors may be congratulated on a very successful achievement, both in hanging and decoration. Sir Charles Holme had the advantage of his experience in arranging the other Italian rooms, including the Tuscan, and had here the problem of dealing worthily with those creations of Venetian art which possess such splendidly decorative and emotional qualities. The "single line" has been adhered to, with the best results, and the background chosen is admirable—a cool, yet rich, grey, with above a single line of gold to divide it from the white frieze, makes the ideal "Fondo" for these rich and luminous canvases.

Now let us come to the paintings themselves, which occupy Rooms VI. and VII. As we enter the first of these we find facing us the magnificent portrait of Doge Leonardo Loredano, by Giovanni Bellini, with on either side two superb and typical paintings of the Virgin and Child, both signed on the "cartello" by that master. The grand "Annunciation" by Carlo Crivelli, recently moved, now balances effectively a finely decorative "Circumcision" by Marco Marziale; and next to this last the Portrait of a Mathematician, by Gentile Bellini, is a noble creation of that age of Humanism. The place of honour at the end of this room is occupied by a large school painting under Gentile Bellini's name, showing the Virgin and Child with SS. John and Christopher and Doge Mocenigo kneeling in adoration. To be noted in this room is the little full length of Gaston de Foix in bright steel armour, bequeathed by Mr. Samuel Rogers and ascribed to Giorgione, and the wonderful "Vision of St. Hubert," by Vittore Pisano, which is an old favourite of my own.

But in Room VII. we come to the later men and the full glory of Venetian creation. Savoldo, Tintoretto in the passionate movement of the St. George and the beautiful nudes of the "Milky Way," Moroni with his fine portraits of Italian noblemen; while the great Veronese canvas of the Family of Darius at the feet of Alexander occupies the centre of the wall.

We are in Venice of the seventeenth century in the crimson-robed figure of Andrea Tron, Procurator of St. Mark, in the "Scuola di San Rocco," by Antonio Canale, balanced by his fine view of Venice, on either side of the "Sacrifice of Isaac" by that scarcely yet appreciated painter Giovanni Piazzetta. Veronese, always decorative, holds the end of this room with his allegory of "Scorn"; and to be noted on the next wall is the richly dressed, fleshy "Italian Nobleman," by Cariani, and that dreamy, ermine-robed figure with the same title by Moretto. The vast canvas by Sebastiano del Piombo of "The Raising of Lazarus" just fills the entire blocked doorway on this wall; and lastly I shall mention the two Titians, "Bacchus and Ariadne" and "Noli me tangere," and a very remarkable battle scene ascribed to the Ferrarese School. The pictures are well grouped, there is no crowding, and the hanging and arrangement of these two rooms may, in my judgment, compare favourably with that of any gallery in Europe.

A very remarkable exhibition is that of "Paintings of Battles in the Air," by Lieut. Henri Farré, Observateur-Bombardier, at McLean's Gallery in the Haymarket. These paintings, as has been observed, are of great value as historical documents, for they are accurate, even to the smallest detail; and at the same time they have considerable merit as works of art in a new field. "Light effects are not the same a mile above ground as on the surface. Distance and perspective are replaced by landscapes as seen from the vertical. Action and brilliant colour are the prime characteristics of this new aerial art." Many of these paintings represent actual conflicts—a Nieuport bi-plane fighting a German Fokker monoplane, a hundred bombing aeroplanes returning from a bombing raid, the destruction of a German submarine in the North Sea by a French hydro-aeroplane; and these stirring records of conflict are also admirable paintings, for Henri Farré was already a skilled artist when the war claimed him, and had shown in the Salon from 1896 to 1914.

The exhibition, which opened last Friday, March 10, of Mr. Southall's paintings and drawings at the Alpine Club Gallery, is not one to be missed. Joseph Southall is a Birmingham man, and was articled to an architect from 1878 to 1882, but he came under the spell of the Italian primitives, and visited Italy in the spring of 1883, coming back as a fresco and tempera painter as well as architect. In his later work he received much help from the late Sir Edward Burne-Jones, and exhibited his tempera paintings for twelve years at the New Gallery.

All these influences are to be traced in his work now on view, which has great beauty of type, and clean, careful drawing. He is more successful in his figure subjects than landscapes, especially his larger tempera paintings, though some of the little Venetian studies are charming, and he is really a fine colourist in such subjects as "The Nut-brown Maid" and "New Lamps for Old." He evidently prepared even his portrait work ("The Sisters" and "Equestrian Portrait") by a careful and elaborate cartoon, and these lack any spontaneity and freedom; one might almost class this artist as a survivor from the Pre-Raphaelite school, a tradition of our art which possessed great elements of decorative and imaginative beauty.

In the exhibition of Mr. Hesketh Hubbard's work at the Brook Street Gallery that artist shows himself an accomplished etcher; his "Pedlars" shown here is in many of the Galleries of Europe. One of his finest paintings is his "Intérieur de l'Eglise. S. Jean du Doigt," exhibited in the R.A., at Birmingham, Glasgow, and elsewhere. The aquatints and charcoal drawings also shown here by S. Langdale possess imaginative qualities of high order; I liked specially her "Illustrations to Music." Lastly one word of praise for the flower-paintings of Eva Savory at the Gieves Gallery, on view from March 9 to 25; these are unquestionably brilliant. The low-water mark is found in "Azalea" and "Nasturtiums," commonplace in treatment and composition, but I consider very few flower-painters can excel the brilliant handling of "November," "Rhododendrons," or "Red, White and Blue." In the line she has chosen I believe Eva Savory has yet completer expression and a great future waiting her efforts.

Two very interesting art publications by Messrs. Seeley, Service & Co. are "The Gentle Art of Faking," by R. Nobili, and "Water-colour Painting," by Alfred W. Rich. Signore Nobili, whom I have known at Florence for many years, is fully competent to deal with his difficult subject, and does so very effectively in the present volume, commencing with collectors and "fakists" in Roman times, then in Italy of the Renaissance, when such men as Moderno were wonderfully convincing imitators of the antique, and then in modern times, carrying his subject into pottery, velvets, and tapestries. The "fakist" has often such real individual talent that it seems a pity he should be doing purely imitative work; the attraction is, of course, the immense prices paid for well-known names.

Mr. Alfred W. Rich is a water-colour artist whose work I have often commended in these columns; in this volume of "The New Art Library" he gives us a thoroughly practical and useful manual on this fascinating branch of art, which can be recommended to the serious student. It is interesting to note that, like Carlandi, "early in my labours I felt impressed,"—he tells us, "with the quality of Peter de Wint's work, and the advantage to be gained from a close study of it.

S. B.

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Modern Methods in Building Construction.—IX.*

By Albert Lakeman, M.S.A., M.C.I.

Surplus Soil Transport and Steam-driven Wagons (*cont.*).

The steam tipping wagon illustrated in fig. 46 is made by Messrs. Wallis & Steevens, of Basingstoke, and it is fitted with hand-operated tipping gear and is of 5-ton capacity. The special features claimed by the makers of this type include the enclosed type engine in which the parts are enclosed and run in splash oil bath which affords perfect lubrication with the minimum attention on the part of the driver, and protection is given from outside dust and dirt, which protection increases the efficiency of the wagon. Another point put forward as an important one is the way in which the boiler is held in the channel iron frame. The channels are held by means of clips on the smoke-box which allow a lateral motion and thus provide for the expansion and contraction of the boiler.

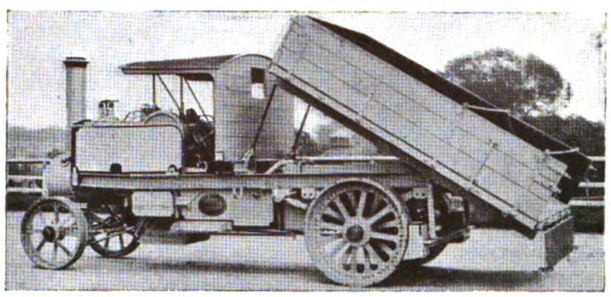


Fig. 46.—THE "WALLIS" STEAM WAGON, WITH DOUBLE SCREW END-TIPPING BODY.

It is claimed that the method obviates the trouble with leaky tubes often found in wagons when this is not adopted. The writer has no detailed costs of operating, but the average fuel consumption is stated to be about ten miles per cwt. of coal, with speed up to five miles per hour on steel tyres and eight miles per hour on rubber tyres. The bodies for these wagons can be built of any suitable design to suit users' special requirements, but the type illustrated will generally be the most satisfactory for contractors' work.

This firm are also makers of steam tractors and road rollers, but it is not proposed to give descriptions of such equipment here, as it hardly comes within the scope of these articles.

The "Robey" steam wagon made by Messrs. Robey & Co., Ltd., of Lincoln, is illustrated in fig. 47, and some of the maker's claims in connection with this may be stated. The firm have adopted a chassis with members of pressed steel in place of the channel frame frequently used, and they state that in this and other respects they have departed from the orthodox method and developed more on the lines of automobile practice. Amongst the points raised is that few, if any, of the steam wagons in general use comply with legal requirements regarding axle weights, &c., whereas this point has received special consideration in the design of the Robey wagon, and has resulted in a type which, with a normal load of five tons, complies with legal front and back axle weights. With a standard platform body carrying a load of five tons complete with water and fuel, the total weight is 10 tons 15 cwt., and with the load fairly evenly distributed this gives a rear axle weight of less than 7½ tons only. This firm are very emphatic about the economical running costs of their wagon, and under the heading of "transport costs" they give the following table which is published as a claim only, and with the understanding that other makers may disagree with the items dealing with other steam wagons:—

Item	Petrol Vehicles	Other Steam Wagons	Robey Steam Wagons
Load ...	... 5 tons	5-6 tons	5-6 tons
Consumption	... 1 gal.=5 miles	1 cwt. coal= 12 miles	1 cwt. coal= 16 miles
Fuel Costs	... Cost at 44*d.* per gal.= 8·8*d.* per mile	Cost at 50*s.* per ton + 20 per cent. lighting= 3*d.* per mile	Cost at 50*s.* per ton + 20 per cent. lighting 2·3*d.* per mile
Other Costs (exclusive of wages)	7·4[illegible]*d.* per mile	5·37*d.* per mile	5·37*d.* per mile
Total Cost ...	... 16·29*d.* per mile	8·37*d.* per mile	7·67*d.* per mile

The tipping wagon is operated by a telescopic ram, worked from the boiler pump and operated by a three-way cock. This ram is of comparatively small diameter, and is at the front of the body in the place usually occupied by the tipping screws. To avoid great length this is made in two sections, so that when one is fully out the second one can follow on and increase the angle of tip. Two fulcrums are arranged on the body, the first one in such a position that the body is practically on balance so that very little pressure is required to deposit the first portion of the load. The body after describing half its angle of tip engages with the second set of fulcrums, upon which it rotates for the final angle. This method, it is claimed, gives a far greater tipping angle than any other system, and it is very convenient for tipping substances such as tar-macadam, etc.

Petrol Wagons.

Some information relative to this type of transport has already been given when dealing with steam wagons owing to the comparisons that have been drawn, but as such information was that presented by advocates of the steam wagon, it is necessary to present at least one petrol wagon maker's claims in order to be fair. As previously stated the petrol lorry has the advantage of being very suitable for small and medium loads over reasonable distances and where great mobility is required. There is no doubt that the small type petrol lorry is an extremely useful piece of equipment for the average contractor, as in many cases comparatively light loads only will be carried, and the use of a steam wagon would not be justified. The type of vehicle selected will therefore depend on the nature of the loads to be transported and the distances to be covered, and it will often prove economical to employ a small size petrol wagon in place of a heavy steam wagon, although the operating costs per ton-mile for the former will be higher than for the

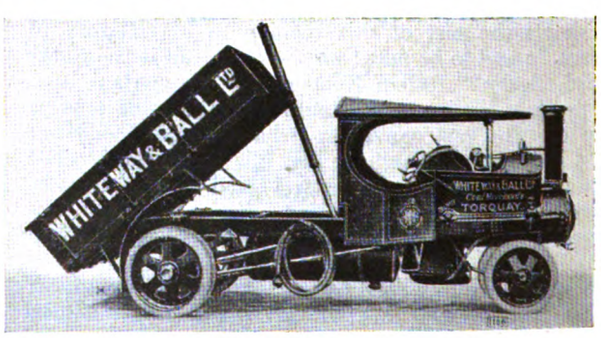


Fig. 47.—THE "ROBEY" 5-TON STEAM WAGON, WITH TIPPING BODY.

latter. The wagon shown in fig. 48 is the "Lacre" tipping type, made by the Lacre Motor Car Co., Ltd., of King's Cross, London, and these can be obtained with capacities of 30 cwt., 2, 3, 4, and 5 tons respectively. The makers state that the 2-ton medium capacity vehicle appears to be gaining considerable favour, and the reason for this is that a wagon of that capacity can nearly always

* I. Introduction, Steam Shovels, Jan. 13; II. Steam Shovels (*cont.*), Trench Diggers, Jan. 20; III. Grab Buckets, Scrapers, Jan. 27; IV. Drag-line Excavators, Feb. 3; V. Derricks and Cranes, Radial Loaders, Feb. 17; VI., Surplus Soil Transport, Feb. 24; VII. Surplus Soil Transport (*cont.*), Mar. 3; VIII. Surplus Soil Transport (*cont.*), Mar. 10.

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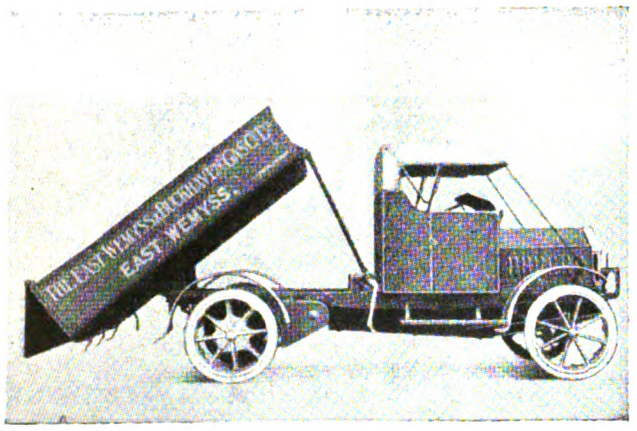


FIG. 48.—"LACRE" TIPPING WAGON—STEEL BODY.

be usefully employed, whereas heavier types, in order to run on an economical basis, must carry loads well up to the maximum at all times.

It is not always possible or convenient to arrange for constant loads of four or five tons whereas the owner will invariably be able to arrange for a 30 cwt. or 2-ton load. The chassis for the 2-ton type "Lacre" has a wheel base of 12 ft., with an approximate weight of 42 cwt., and the engine is 30 horse-power. The body can be supplied to suit the special requirements of the owner, and it may be timber built, plain or lined with sheet steel, or all steel. The most suitable body for the contractor will be the end-tipping type, and this can be equipped with ordinary hand-screw gear, power operated screw gear, or the Lacre gravity-type tipping gear. The latter type is strongly recommended by the makers on account of its simplicity and speed of operation. It is claimed that the full load can easily be tipped by one man and the empty body returned to its normal position inside of thirty seconds. The mechanism is very simple, and consists of two toothed racks situated over, and parallel with, each side of the chassis frame, the rear ends of which are attached to a cross shaft attached to the under side of body. On each side of this cross shaft is a roller functioning on a ramp attached to each side of the chassis frame. On the cross member at rear of frame a roller is fitted at each end over which the rear end of the body rolls on suitable sectors. At the rear of the cab two cross shafts are fitted to the frame, one of which is operated by a hand crank; this engages by means of toothed pinion with the other shaft which in turn operates the racks. The method of operation is to release the safety catch and turn the hand crank which pushes the body backwards at the same time causing it to tip. Recovery is effected by a reverse turn of the crank, the safety catch automatically coming into action when the body is in position. The load is not lifted as with a screw gear, and consequently very little effort is required, and as the effort is constant the gear reduction is comparatively high, thus giving maximum speed of operation.

The cost of operating this petrol wagon will naturally vary according to local conditions, annual mileage, etc., but the makers claim that a fair average estimate is about 1s. 4d. per mile run on a basis of about 300 miles per week. This figure includes depreciation, interest on capital, wages, tyres, renewals, fuel, etc., and as the load capacity of the vehicle on which this cost is based is $2\frac{1}{2}$ tons, the cost per ton-mile would be 6.4d. This running cost is higher than that given for steam wagons, but it must be realised that the smaller capacity wagons will always show a higher rate per ton mile if the full loads are assumed in all cases, but as an offset the previous remarks regarding the difficulty of providing a large load must be considered.

Many advocates of the petrol wagon will be found in practice among contractors, and this will be evident when the very large number of owners of this type is considered, and many different makes could be given, but the foregoing remarks cover the essential points in connection with this type of transport, and it is not proposed to devote any more space to this aspect of the subject.

Narrow-gauge track with wagons.—The method of transporting surplus soil in side-tipping wagons on a narrow-gauge track is one which has been in constant use for many years, and in this sense it cannot be described as a modern method except that it is still used extensively, and under ordinary conditions it is more economical and far superior to ordinary hand labour with small receptacles or horse-drawn carts. The track is commonly known as "Jubilee" or industrial track, and the wagons as "Jubilee" wagons, and these should form part of every contractor's equipment as the outlay required is comparatively small and the maintenance is almost negligible.

This type of transport has many advantages for general contractors' work, among which are: it can be operated over surfaces where no roads are available when the work is commenced; it is sufficiently flexible to allow the necessary changes at the loading point or disposal tip; the wagons can be operated by hand labour, horses, or light locomotives; and the number of units operated can be increased or decreased with ease.

If the lay-out of the tracks is well considered at the outset it is usually possible to put down the main lines in positions which will permit of their retention for useful work throughout the execution of the greater part or whole of the scheme, and additional tracks or branches can be laid and taken up as required without interfering with the general traffic between important points. As regards the saving in cost and time accomplished by the use of this method it is interesting to note that the advantages claimed by one maker of portable railways includes the following:—

On a level railway a horse can draw seven wagons loaded with earth, each containing about 20 cubic feet, equal to seven tons in weight, at an average speed of $2\frac{1}{2}$ miles per hour. A horse can thus move about seventy tons a distance of one mile by making ten trips with loaded wagons and returning with the empty wagons in a 10-hour day at an average speed of only two miles per hour, whereas on an ordinary road with a two-wheel cart a horse could not do more than one-tenth of such work.

On a level railway a man can move a wagon containing 12 cubic feet of sand, equal to 10 cwt., at a speed of $1\frac{3}{4}$ miles an hour, returning with the empty wagon at a speed of $3\frac{3}{4}$ miles an hour. The average speed being $2\frac{1}{4}$ miles an hour, a man in a day of ten hours could therefore move about 60 tons' weight of earth a distance of 200 yards, being about ten times as much as could be done by a navvy with wheelbarrow.

It is doubtful if these claims could be absolutely sustained in practice, and it is worth while making one small comparison to see how the results will agree with previous particulars given. Under the heading of hand labour it was stated that for the purpose of comparison it could be assumed that one man with a wheelbarrow could do the equivalent of 10 ton-miles per week of forty-four hours. As we are now dealing with the return journeys with empty receptacle it will be necessary to reduce the actual amount of soil removed to five tons, making the output for forty-four hours 5 ton-miles, or $5 \times 1{,}760 = 8{,}800$ ton-yards. The output, according to the claim just given above is six tons over 200 yards in ten hours, or 1,200 ton-yards per ten hours. In forty-four hours this output would be $1{,}200 \times 4\frac{2}{5} = 5{,}280$ ton-yards, which is considerably less than the output for hand labour given by the writer. If the output with hand-labour operating wagons on a level railway is taken as sixty tons over 200 yards for ten hours, or 52 800 ton-yards in forty-four hours, which is the equivalent, the ratio would not be ten, as stated, but six only, and this would appear to be a more reasonable figure. The cost per ton-mile for hand labour and wheel-barrow was given as 7s. 6d., and on this basis the cost per ton-mile for hand-operated wagons on a railway will be 1s. 3d.

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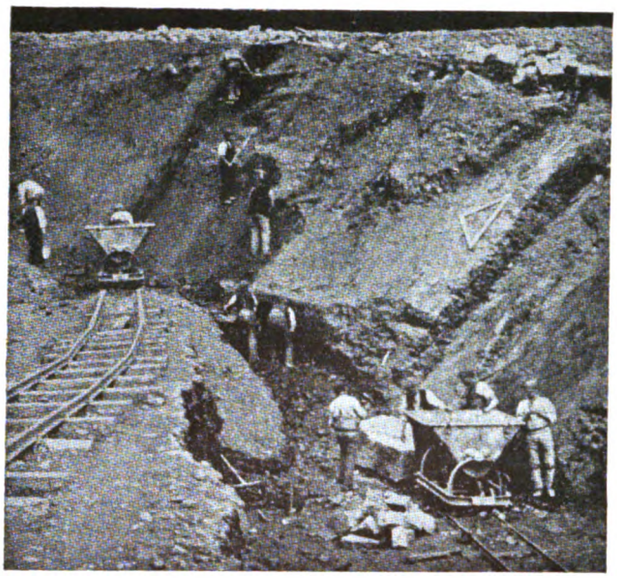


FIG. 49.—THE HOWARD DOUBLE-SIDE TIP WAGONS.

In the comparison between horse and cart when the cost was given as 1s. 6d. per ton-mile the ratio of six can also be taken, and the unit figure for horse-drawn wagons on a level railway would equal 3d. It will be seen that this last figure is a very low one, and it goes to prove that the ratio of ten is excessive, because if this figure is accepted the cost for the railway would only be 1.8d. per ton-mile, and such cost would be certain to be exceeded.

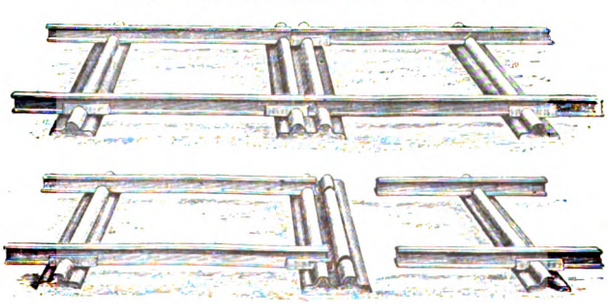
On the basis of the figures here given it will be seen that the comparative costs for the different methods per ton-mile dealt with up to the present are as follows:—

Hand labour with wheelbarrow	7*s.* 6*d.*
Horse and cart	1*s.* 6*d.*
Steam Wagon average	3·5*d.*
Petrol ,, ,, ...	6·7*d.*
Hand labour on industrial track...	1*s.* 3*d.*
Horse ,, ,, ,, ...	3*d.*

It is somewhat surprising to see that the last mentioned is the most economical method, and although none of the figures can be guaranteed, it indicates that the use of track is worthy of serious consideration on any contract. As a general rule it can be stated that the use of steam wagons will prove the most economical for large quantities over considerable distances, and the industrial track will prove the most suitable and the cheapest method for hauling small or large quantities over comparatively short distances, and more particularly within the vicinity of and on the actual site of building operations.

There is a large variety of industrial track available for contractors' use, and the turntables, points and crossings, sleepers and other accessories can be obtained to suit any particular class of work. The use of side tip wagons for excavation work is shown in fig. 49, which illustrates the type supplied by Messrs. J. & F. Howard, of Bedford, and fig. 50 shows the rail and steel sleepers

HOWARD'S PORTABLE RAILWAY,
WITH CORRUGATED STEEL SLEEPERS



The above Illustrations show the Single and Jointing Steel Sleepers and Metal Keys.

FIG. 50.

which are also made by this firm. In a portable railway the essential point is the ease and rapidity with which a line can be laid down and removed, and it is claimed that this has been secured by the introduction of these special sleepers and jointing sleepers and serrated metal keys. The rail rests on the full width of the sleeper, and no bolts or clips are necessary, as the serrated key provides secure attachment, while the jointing sleepers eliminate all fish-plates, bolts or nuts at the ends of the rails. The keys are arranged to allow either one to be taken out without disturbing the others, and any trouble caused by rusting of bolts and nuts is avoided.

(*To be continued.*)

Royal Institute of British Architects.

The following notes are from the minutes of the Council meeting held on March 6:—

Unification and Registration.—A statement for the information of members was approved and ordered to be published in the Journal.

Royal Commission on Greater London.—On the recommendation of a Joint Committee, composed of representatives of the four Standing Committees and the Town Planning and Housing Committee, the Council appointed four members to give evidence on behalf of the Royal Institute before the Royal Commission on Greater London.

The British School at Rome.—Mr. John W. Simpson, past-President, was appointed to represent the Royal Institute for the years 1922-1924 on the Council of the British School at Rome.

The Coal-smoke Abatement Society.—Mr. W. G. Newton was appointed to represent the R.I.B.A. on a deputation to the Minister of Health.

The Architectural Association.—A grant of £100 was made in aid of the funds of the Architectural Association, and an instalment of £125 of the R.I.B.A.'s donation to the A.A. Endowment Fund was also voted.

Special Election to the Fellowship.—Mr. William Walcot was elected a Fellow under the provisions of By-Law 12.

The Unification and Registration Committee.—The following were appointed to serve on the Committee: Mr. E. P. Warren (F.), Berks, Bucks, and Oxon Architectural Association; Mr. Alan E. Munby (F.), York and East Yorkshire Architectural Society; Mr. E. T. Boardman (F.), Norfolk and Norwich Architectural Association; Mr. T. Aikman Swan (A.), Edinburgh Architectural Association; Mr. Walter Cave (F.).

The South Wales Institute of Architects.

At the annual general meeting of the Central (Cardiff) Branch, held on March 3, the Executive Committee for the ensuing year was elected as follows:—

Chairman: E. C. M. Willmott, A.R.I.B.A.

Hon. Treasurer: H. Teather, F.R.I.B.A.

Members: Cecil Wilson, F.R.I.B.A., W. S. Purchon, A.R.I.B.A., J. Williamson, A.R.I.B.A., Percy Thomas, F.R.I.B.A., Ivor P. Jones, A.R.I.B.A.

Associates' Representatives: T. E. Llewellyn, Colin L. Jones.

Hon. Secretary: C. F. Jones, A.R.I.B.A., 13 Edwards Terrace, Cardiff.

The representatives of the Central Branch of the Council of the South Wales Institute of Architects were also elected as follows:—

Messrs. E. C. M. Willmott, C. F. Jones, A. G. Edwards, T. Alwyn Lloyd, W. S. Purchon, Cecil Wilson, J. Williamson, and C. J. Ward.

Associates' Representative: T. E. Llewellyn.

Messrs. Percy Thomas, H. Teather, and Ivor P. Jones, of the Central Branch, are also members of this Council as president-elect, hon. treasurer, and hon. secretary respectively.

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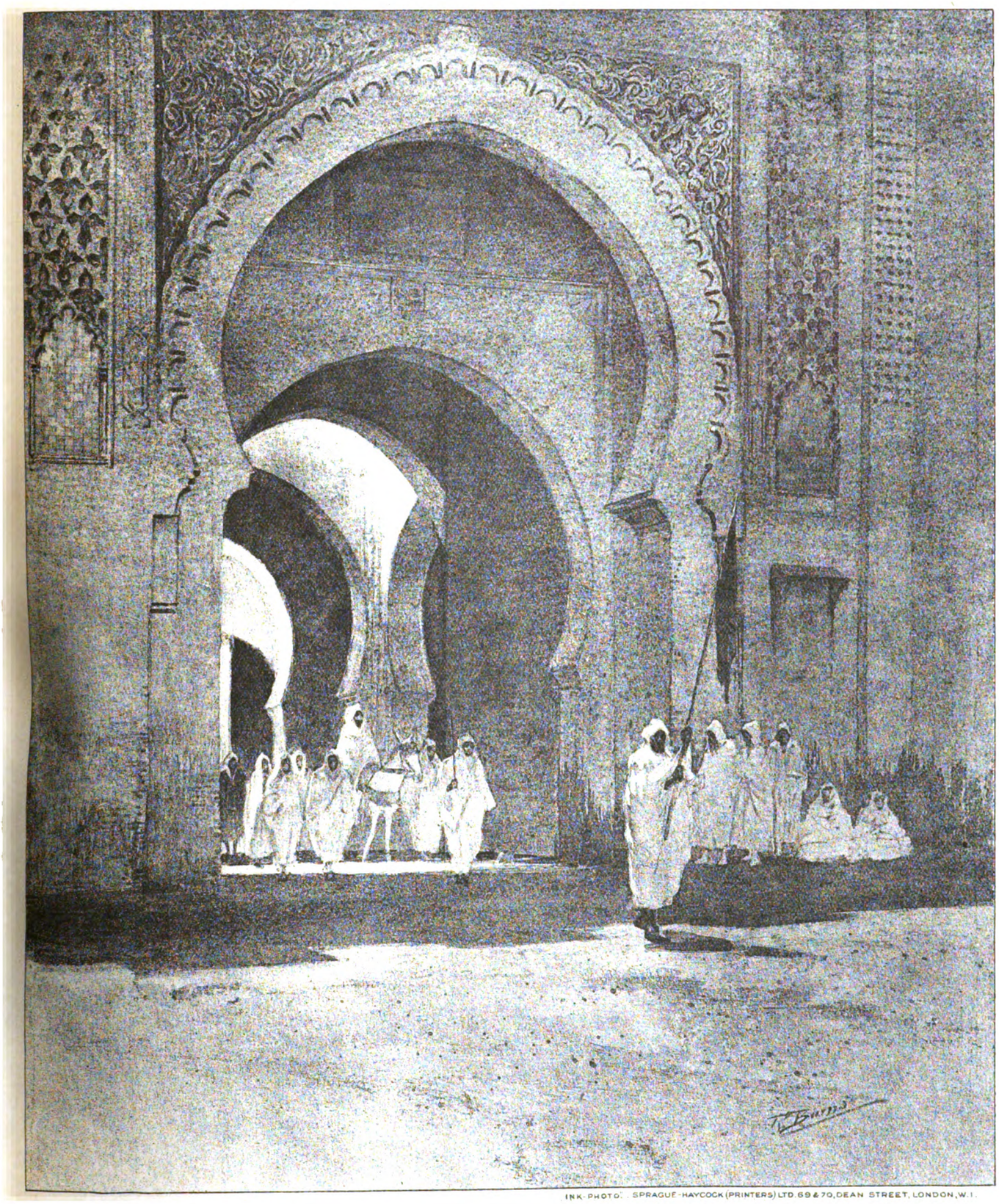
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WAR MEMORIAL, GRAYS, ESSEX.

ALFRED COX, ARCHITECT.

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INK-PHOTO. SPRAGUE-HAYCOCK (PRINTERS) LTD. 69 & 70, DEAN STREET, LONDON, W.1.

A MOORISH ARCHWAY.

FROM A WATER COLOUR BY ROBERT BURNS.

[BY PERMISSION OF THE LEICESTER GALLERIES.]

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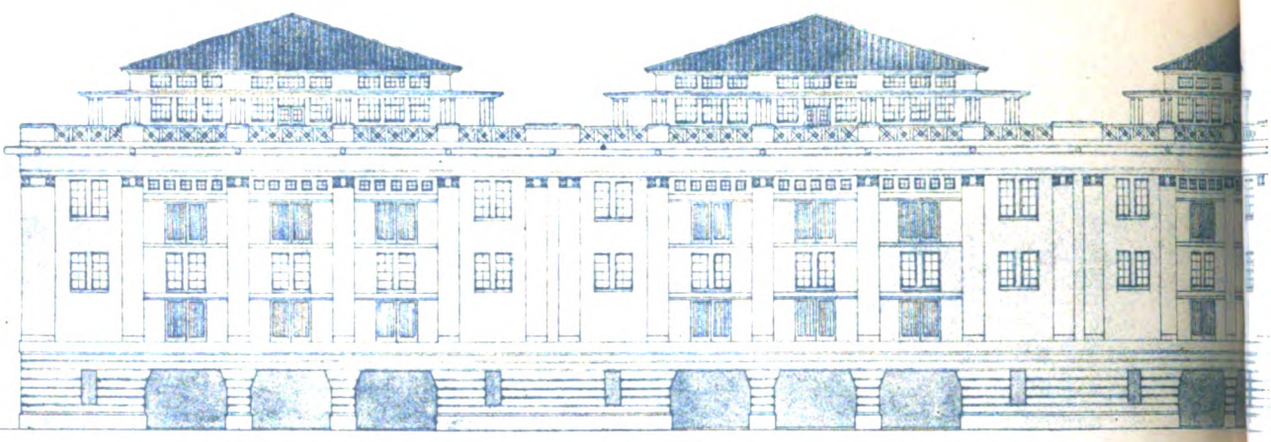
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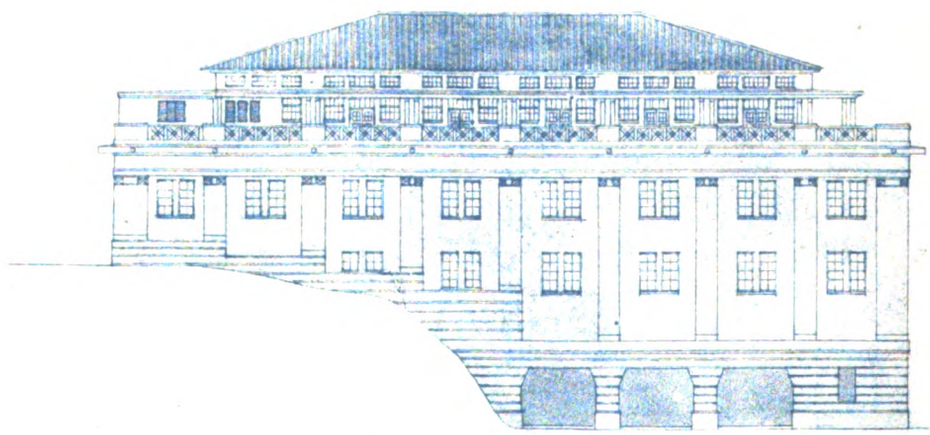
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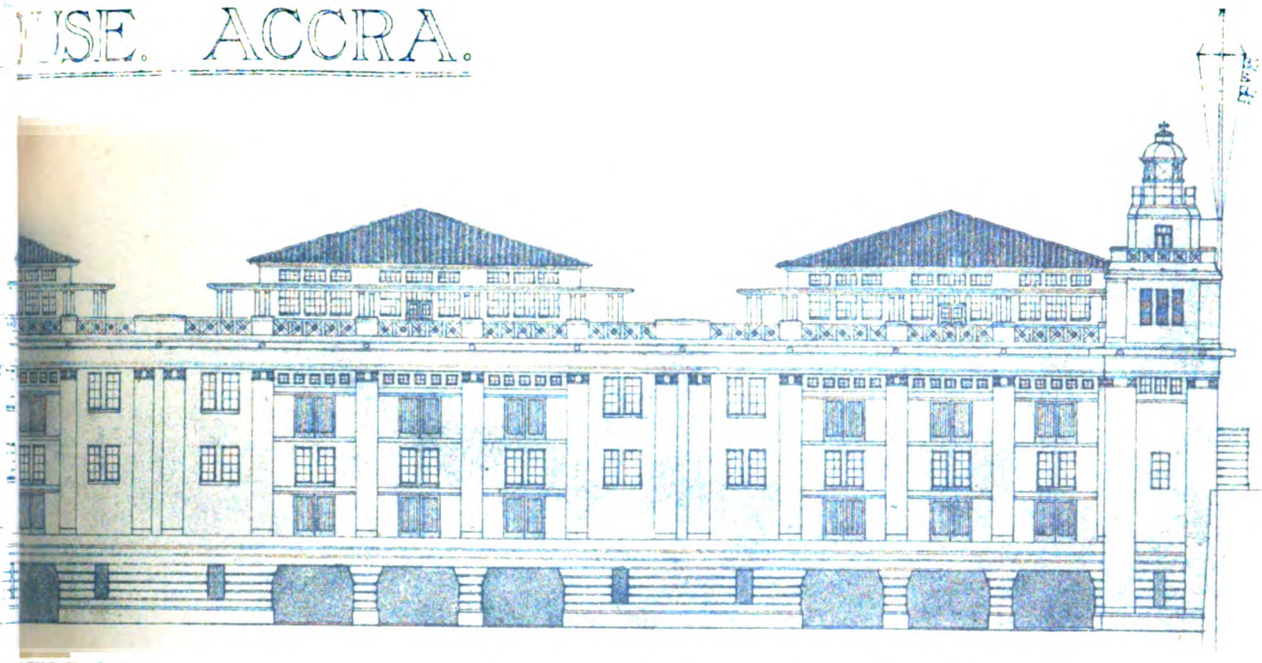
SOUTH WEST ELEVATION.

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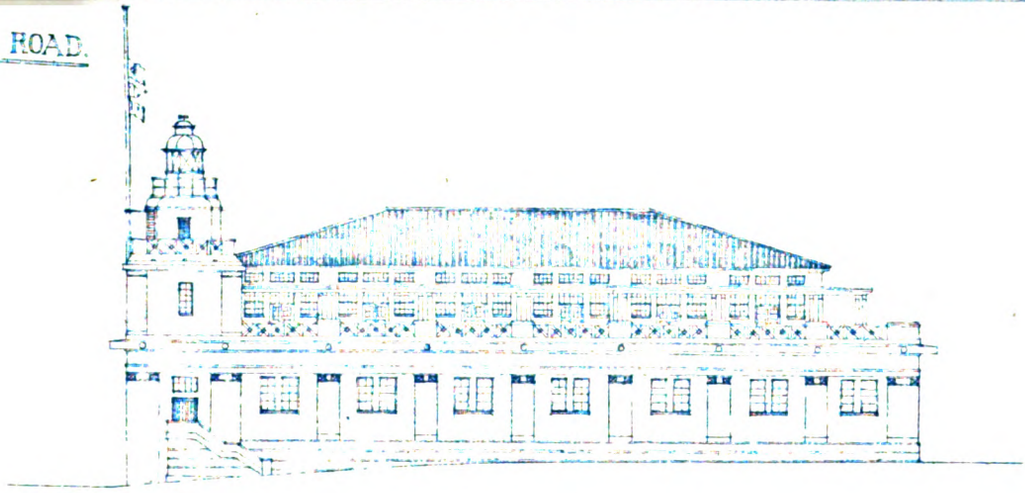
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TO BEACH.



TO ROAD.



NORTH EAST ELEVATION.

H. BULKELEY CRESWELL F.R.I.B.A.
— ARCHITECT —
11, STONE BUILDINGS
LINCOLNS INN. W.C.2.

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Analysis of Building Costs.

The paper read on Monday, March 6, at the Surveyors' Institution by Mr. B. Price Davies brings back reminiscences of the struggle which many of the members of the profession have endured during the last few years with the ponderous systems of costing devised by the Government Departments and others in order to regulate some of the prime-cost contracts under which several of the housing schemes were carried out.

It does not in itself throw very much light or illuminating criticism upon these systems, except to show the great discrepancies which occur in the actual costs of identical pieces of work. It quotes some useful data for application to monthly certificates to be given upon a series of houses in different stages of completion.

Stage No.	STAGE. Description.	Feb. 1920 A. Per cent. per stage.	Feb. 1920 A. Per cent. Inclusive of previous stages.	Feb. 1921 B. Per cent. per stage.	Feb. 1921 B. Per cent. Inclusive of previous stages.	Feb. 1922 C. Per cent. per stage.	Feb. 1922 C. Per cent. Inclusive of previous stages.
1	Excavation and Concrete ...	1·7	1·7	2·9	2·9	—	—
2	D. P. C. Level ...	2·2	3·9	3·5	6·4	5·0	5·0
3	Ground Floor Cill Level	6·1	10·0	5·4	11·8	—	—
4	First Floor Level...	12·2	22·2	10·6	22·4	22·5	27·5
5	Ready for Roof ...	11·1	33·3	15·2	37·6	—	—
6	Roofed	12·3	45·6	11·1	48·7	33·7	61·2
7	First Coat of Plastering ...	12·7	58·3	15·1	63·8	7·5	68·7
8	Second ditto ...	21·8	80·1	14·7	78·5	11·9	80·6
9	Painted	14·3	94·4	16·0	94·5	—	—
10	Completed ...	5·6	100·0	5·5	100·0	19·4	100·0
		100·0		100·0		100·0	

A table is quoted herewith. The "A" column is for a parlour type of house in brick, the "B" column for a non-parlour house in brick, and "C" a concrete house of special construction. The dates are given at the head of each column. The writer has compared the figures given in the "A" column with those for a similar house at the same date, and finds that for the first five items the cost was 40.1 per cent., compared with 33.3 per cent. quoted. It indicates that even for a building of similar character and size no reliance can be placed upon relative costs, except when applied to exactly similar types.

The necessity for discriminating between various descriptions of bricks and the thicknesses of joints in estimating the cost of brickwork is shown by the following table, in which the labour is calculated at the rate of 600 bricks per day of a bricklayer and labourer—that is, fifty-six hours per rod, or just over the old estimated rate of five and a-half days per rod which used to be allowed in estimating the cost of brickwork.

Allowing for 1 Bricklayer and 1 Labourer laying 75 Bricks per Hour.

Per Yard Cube of Brickwork.

Sizes of Bricks and thickness of Joints	No. of Bricks per cubic yard.	Mortar Alternatives. For Bricks without Frogs. C. Yds.	For Bricks with 1 Frog. C. Yds.	For Bricks with Double Frogs. C. Yds.	1 Bricklayer and 1 Labourer Hours.
(A) 8¾ in. × 4¼ in. × 2¾ in. with ½-in. Joints	386	·157 *50/6*	·207 *51/6*	·257 *52/7*	5·15
(B) Ditto with ½-in. ditto ...	338	·263 *46/9*	·307 *47/8*	·350 *48/6*	4·51
(C) 9 in. × 4¼ in. × 3 in. with ½-in. Joints	327	·148 *43/2*	·191 *44/-*	·233 *44/11*	4·36
(D) Ditto with ½-in. ditto ...	285	·259 *40/2*	·296 *40/11*	·333 *41/8*	3·80

Recent observation goes to show that these figures are approximately correct for the present-day output, and, if that be the case, it is an answer to those who contended some time ago that it would be necessary to revise the whole of the labour constants which had been in use for many years. We have never agreed with that view, as we hold that it is an effort for a man to withhold his labour, and that, sooner or later, as soon as politics cease to operate in the direction of preventing a man from doing a natural day's work, the old figures would hold. They may have to be extended and used with greater discrimination, but in the main we think that they represent a man's natural output. The difference in quality, and also in output, between a day's work of a townsman and a countryman must always be borne in mind. Hurst's well-known Labour Constants applied, in our opinion, to the work of a townsman.

Some useful figures are given to show the actual distribution of cost of a semi-detached house of parlour type down to the smallest detail.

The labour is given as three-tenths of the total, and the materials thirteen-twentieths. These proportions are rather surprising, as, according to previous reckonings, the proportion of labour to material was over one-half, and the figures given in to-day's price books confirm that estimate.

With materials at their present level any such figures are not of much value, as by the end of this year it is estimated that the cost of building materials will be down to 50 per cent. above pre-war values.

The defect of so many costing systems is that by the time the results are obtained it is not possible to apply them except as a guide for future estimating. What is wanted is daily itemised cost records, which will make it possible to find out weak spots in methods of construction or in organisation. In the shops this is now fairly general, but on the job it is by no means common. Except perhaps with regard to overhead charges.

There are various methods of dealing with buildings in such a way. These are well described in an American work published in 1906 by H. P. Gillette (Handbook of Cost Data.)

The *unit* method is one largely used by contractors. As applied to brick or concrete buildings the method is to divide the walls, piers, girders, &c., into units, and give each a number on the plan, and prepare small prints of each with a record card for each. These cards are turned in every night and posted in a record book, in which is also kept the yardage of each unit. By this means the foreman has only to count the units. It is stated that this unit-recording system has been the secret of the success of several well-known firms, and has frequently been the means of increasing output by twenty-five per cent.

Estimating is just becoming more scientific, and those who are in possession of well-kept records are the ones who can safely reduce their charges with the knowledge so gained.

For the architect the question resolves itself into one of selection. The scientific contractor will usually be one who is satisfied with his contract, because he knows the conditions. The unscientific contractor, who is not so certain, will frequently misjudge the conditions, and find himself left with a balance on the wrong side, and correspondingly difficult to deal with.

The subject should be taught in our technical schools, and favoured in business by all who know the value of proper bookkeeping.

Competition News.

Through the courtesy of a New Zealand architect, now in London, three photographs showing different aspects of the site of the Auckland War Memorial have been lent to the Royal Institute of British Architects. They are exhibited in the R.I.B.A. Library for the benefit of competitors.

Messrs. B. Whitaker & Sons, Ltd., of 4 Albion Street, Leeds, have decided to promote a competition in connection with their Huncoat Bricks and Terra Cotta Ware. A prize of £250 will be awarded to the architect designing a residential building which, in the opinion of the assessor, has the most attractive elevation. Another prize of £250 will be awarded to the architect designing a public building or business premises which, in the opinion of the assessor, has the most striking frontal elevation. There are six conditions attached to this competition, the first of which is that "the building must be built with Huncoat bricks and terra cotta ware between January 1, 1922, and January 31, 1923." All competing photographs must be sent to Messrs. Whitaker & Sons not later than February 28, 1923. The assessor will be the Editor of The Architect.

Correction.—We stated the cost of Vol. LIII. of "Academy Architecture" as 5s., whereas it should have been 10s. net.

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Ancient Painted Glass.

At a meeting of the Society of Architects held on Thursday, March 9, at 28 Bedford Square, W.C., an interesting paper was read by Mr. John A. Knowles, of York, under the title of "The Study of Ancient Painted Glass." The subject was treated from the point of view of art and craftsmanship rather than from the archæological standpoint, that is to say from an examination of the windows themselves by the aid of photographs rather than from documentary evidence. We here give a resumé of the lecture.

According to Theophilus, a monk who wrote in the twelfth century, the cartoon for the glass was drawn on one end of a whitewashed board supported on trestles. The vacant space at the other end was used for laying-out the glass and for glazing on. But by this method the artist was able to see merely a portion of the figure he was drawing at a time. These boards or table-tops being cumbersome things only a few were kept, and a figure once drawn had to be used over and over again to represent different personages. At Chartres, for instance, the large clerestory figures of kings, bishops, saints, and prophets are all alike though differently coloured. When cartoons drawn on paper came into use quite opposite causes led to precisely the same effect. They could be so easily rolled up and stored away that the temptation to use them over and over again was too great to be resisted. In the north clerestory of Great Malvern it can be seen how the figures of nine religious, eight bishops and archbishops, and two kings have all been got out of three drawings. The bishop, after having been used four times, was turned over and made to face the other way and the hands altered, and so made to do four times more. The King Edward the Confessor in one light becomes King William in another: whilst the kneeling figure of a religious has been used to represent various members of the community; Prior John Malvern receiving a charter and Prior Aldwin being granted another. Sometimes one figure in a scene was used over again so as to represent another and quite different subject, the background and accessories being filled in around the old figure by a younger and less experienced designer. Or a complete group was lifted bodily and with a few slight changes made to look like an entirely new composition. Designers, though they may not actually copy or trace, are yet very liable to consciously or unconsciously repeat themselves not only in tricks of drapery and accessories but in pose, gesture, grouping, and types of heads. Every artist has his own point of view which he seeks to express in his work. This emphasis by continued repetition becomes a mannerism by which his work is identified and known. Hence we have a "Burne-Jones head," and so forth. If this is carried too far it degenerates into a stock type; and a designer, particularly if he has a great deal to do, unless he is on his guard, eventually adopts a stock rendering of everything he does. This was very common in the middle ages. The designer of the St. William window at York (believed to be John Thornton of Coventry who designed the great window there in 1405) had a stock type for a middle-aged man, an old man, bishop, lady, and so forth. It was always the same old man, whether he represented a Lord Mayor, a king, a peasant, or what not, and similarly with the others.

Sometimes the cartoons of a subject much in demand could be used over again without entailing much labour. The east window of Holy Trinity, Goodramgate, York, represents a subject which was a great favourite round York, viz. figures of patron saints of various gilds with subjects of married saints with their wives and families below—the latter a sly dig at the celibacy of the monastic orders. Although this window appears as a complete and well-balanced design, close examination reveals that it has been painted from cartoons drawn to fit longer lights than those into which it has had to be made to fit, and considerable compression was necessary. The canopies have been drawn in until the pendants touch the top of the heads of the figures below; the nimbus of Our Lord has been reduced in size; and in the panels below St. Mary loses part of her halo and her husband, Alphæus, has all the top of his head cut off. In St. Martin, Coney Street, York, is another copy—this time adapted to fit three lights. We must not forget, however, that this reproduction of the same design over and over again was not confined to stained glass but was common in all forms of art. The greatest artists did it.

A close study of design in ancient glass-paintings shows how young designers and apprentices were trained first by piecing together figures, groups, and heads from other cartoons by the master or head draughtsman, and adding new background, heads, and surroundings. Then drawing tracery angels and other less important parts, until finally they were able to draw a complete figure or composition.

The cartoon having been made, the next step was to cut the glass, and here we find that the mediæval glazier was not deterred by any considerations for what is now called "the limitations of the material" from attempting the impossible in the way of difficult cuts, provided the price he received for his work justified the expenditure of the time and labour involved. When we remember that glass in those days had to be painfully nibbled out with the tool known as the grozing iron, which consisted in a notch in the edge of a small piece of iron such as one sees on the modern diamond or cutting wheel, the marvel is that such *tours de force* of cutting and glazing were ever successfully accomplished at all.

Mr. Knowles gave the following outline of the process of painting. The piece of glass to be painted is laid on the cartoon and the outlines are traced on with glass enamel ground in water, to which just sufficient gum has been admitted to make it adhere. When these main outlines have dried the whole surface of the glass is covered with a coat of similar enamel, and the surface dabbed with a large brush so as to distribute the enamel evenly and eradicate brushmarks. When this coat is dry the lights are taken out with strokes of a stiff, dry brush, and the highest lights are removed with a pointed stick. One of the chief difficulties, especially for amateurs, is that when the wash of enamel is applied the water dissolves the gum in the first traced lines, as they have very little hold on the slippery surface of the glass and the friction of the stippling brush used to smooth out the coat of paint blurs the thick lines and removes the fine ones entirely. To overcome this difficulty those who are not very skilful either fire the traced lines on in the kiln so that they become indelibly fixed, or else mix the enamel for the traced lines with japanners' cold size or some similar varnish which dries hard, and so prevents the outlines being moved and only with difficulty scratched off. But no one except an amateur does this, except in special cases, as it precludes the possibility of employing what is one of the chief charms of glass-painting. An examination of ancient glass paintings proves that from the earliest times until the present day the traced lines were never fired on, and that the glass was never fired more than once. This is easily proved by the number of cases to be met with in old glass where the lights in hair and so forth have been removed with the greatest freedom.

Although there is a common impression that the masterpiece of mediæval art were produced from start to finish by a single individual, or by a few at most, the contrary seems to have been the case, and minute subdivision of labour the rule. There is plenty of documentary evidence, as, for example, in the case of stained glass in the St. Stephen's Chapel (Westminster) accounts, and there is also the internal evidence supplied by the windows themselves. An examination of the St. William window at York reveals that not only were there at least two designers and two figure painters, but at least the same number of ornamental painters were employed on it.

The glass, having been painted, has next to be fired in the kiln, and here, too, there is something of ancient methods to be learnt from a close study of ancient

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examples. Glass in mediæval times was fired in a pan, which was filled to the top with alternate layers of glass and whiting. It was impossible in this method to keep the glass belonging to any particular window or light separate, and it got all mixed together and, like the pieces in a modern jig-saw puzzle, took a great deal of time to sort out. To obviate this and to ensure that the pieces of glass which had been painted together—e.g., in a series of canopies all alike—should eventually be leaded together, it was customary to mark each piece of glass with a symbol, such as a cross or a V.

There is something, too, to be learnt from a careful inspection of the lead work of ancient windows, as glass painters, although they rarely painted their names on the glass, yet they frequently impressed them on the inside of the lead, so that they might be preserved to future generations. This was not possible in the case of early leads, as they were cast, but when the lead vice came into use in the seventeenth century the practice was common. A lead vice is a sort of small mangle, with two toothed wheels like two coins with the milled edges together, between which a square bar of lead is squeezed, the soft metal coming out at the other side of the machine shaped in section like a capital H with a groove top and bottom, into which the pieces of glass are fitted. Sometimes, instead of the edges of the wheels being toothed or milled in order to grip the lead, they had the artist's name and the date engraved on them, which became impressed on the lead in passing through the machine.

A close study of technique and craftsmanship aids in establishing the differences in design and treatment between the work of various schools of glass-painting and the work of individual artists, as well as supplying important clues in determining the date of execution of different windows. As a rule, in cases of restoration or where it is desired to establish the date of a window, antiquaries and archæologists are alone relied upon to do this, and they go solely upon the evidence supplied by documents and the costume, heraldry, and so forth to be seen in the window. But it frequently happens that the practical worker and the scientist could supply additional, and in some cases contradictory, evidence which would throw an entirely new light on the question.

Mr. Knowles said he wished to emphasise the importance of photographs in the study of comparative archæology and architecture. England was far behind continental countries in these matters. We have no "Musée de Sculpture comparée," as they have at Paris. In the case of stained glass it too frequently happened that windows in need of repair are taken out from high and inaccessible positions, and are hugger-mugger refixed without any opportunity being given to examine them or any photographs taken for the aid of students or others. No matter where one goes in France, picture postcards of not merely complete windows but of the smaller details are to be bought everywhere at less than a penny apiece, so there must be a sale for them. The French Government publish a catalogue containing a list of no less than 17,000 photographs of buildings, details of carvings, glass, embroidery, metal work, and what not, all over France, which is a veritable mine of information. In some cases, as at Great Malvern, the above criticism does not apply, as the glass, when taken out during the War, was not only minutely described by Mr. G. McN. Rushforth, F.S.A., but photographed panel by panel and the results published. The authorities of the Victoria and Albert Museum are also carrying on a most valuable work in this direction.

Although there is a common impression to the contrary, the quality of mediæval work was governed strictly by the price paid. You got what you paid for, and there is no evidence of glass-painters making presents of expensive work to those with small pockets, or being actuated by motives of art for art's sake. We have what is practically the catalogue of a mediæval glassworker, John Pruddle, of Westminster. For "Powdered Glass (i.e., quarries with a little diaper pattern in the centre of each) with twelve figures of prophets" done for Eton College Chapel in 1445-6 Pruddle asked 8½d. per foot. For "Glass flourished (i.e. ornamented) with lilies and roses and certain arms," done for the Hall of the College in 1449-50, he wanted 10d. "Glass wrought with different figures and borders," done for the old chancel in 1446-7, cost 1s. "Vitri historalis" (i.e., subject windows, as opposed to single figures) in the Hall cost 1s. 2d., whilst "Divers pictures for the enlarging of the west window," which were probably small subjects added to the bottom of the lights and which entailed a more minute treatment, and therefore more time spent upon them, Pruddle was paid 1s. 4d. For the Beauchamp chapel windows he got 2s. per foot. We might be tempted to think that Pruddle was more of a tradesman than an artist, but quite the reverse was the case. He was, in fact, the greatest artist of his day in England, and occupied a position not inferior to that which the President of the Royal Academy now holds. He was appointed glazier to the King by letters patent in 1440, and when, ten years later, Parliament wrung from Henry VI. the statute known as the Act of Resumption, it was expressly stipulated by a saving clause that nothing in the Act should prejudice "our glasyer," John Pruddle, in respect of a sum of 12d. by the day which the King had granted him for life.

But not only had each individual artist varying prices for different classes and qualities of work, but there were cheap men and dear men. Richard Wright, glasspainter, of Bury St. Edmunds, who made a contract with St. John's College, Cambridge, to do their window for them in 1513, was evidently a price-cutter, for whereas Herman, glasspainter, charged 6d. per foot for lead lights in Normandy glass at Coldharbour in 1485, Wright's price at Cambridge was only 4½d. In 1486 Robert Preston, of York, was asking 4s. each for figures without background: Wright was willing to paint one for St. John's College for 2s.

Mr. Ernest Newton, R.A., of 17 Blomfield Road, Maida Hill, and 4 Raymond Buildings, Grays Inn, formerly of 13 Earl's Terrace, Kensington, a former President of the Royal Institute of British Architects, left gross estate of the value of £11,313, with net personalty £10,075.

The diocese of Birmingham announce that two surveyors under the Ecclesiastical Dilapidations Acts, to hold office for five years, will be elected on Monday, April 3. All applications for appointment should be sent to the Archdeacons at 40 Waterloo Street, Birmingham, on or before March 31.

Subject to the approval of the Corporation of Glasgow, it has been agreed by the Corporation Electricity Committee to conclude the purchase of fully four acres of additional ground from the Caledonian Railway Company for the purpose of extending the siding accommodation in connection with the electric power station at Dalmarnock. The purchase price of the ground is £9,000, and it is estimated that the new works to be constructed, which include increasing the width of a bridge, will cost £50,000.

At the annual general meeting of the Aberdeen Society of Architects, the President, Mr. George Bennett Mitchell, M.B.E., the Vice-President, Mr. R. G. Wilson, jun., F.R.I.B.A., and the past-President, Mr. George Watt, F.R.I.B.A., were re-appointed. The following other members of council were elected: Messrs. J. A. O. Allan, W. L. Duncan, W. E. Gauld, O. George, G. Gregory, A. H. L. Mackinnon, H. Maclennan, D. S. Macmillan, and J. B. Nicol. Mr. George Watt was re-elected representative on the Council of the Institute of Scottish Architects.

The oak panelling of the famous Globe Room at Banbury, which was removed from Ye Olde Reindeer Inn seven years ago, is about to be reconstructed to form the interior of a billiard-room in a Cheshire mansion. The ancient Globe Room interior was purchased by a London dealer who was in negotiation with an American for its sale. The negotiations fell through, and during the war this relic has been in the dealer's warehouse awaiting a customer. The purchaser is now negotiating with the Brewery Company who own Ye Olde Reindeer Inn, for the old beams of the Globe Room in order to preserve as much of the appearance of the room as possible. The date above the window of the Globe Room is 1570.

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Birmingham Architectural Association.

The last general meeting of the session of the Birmingham Architectural Association was held at the Society of Artists' Rooms, Birmingham, on Friday, March 10. The chair was taken by Mr. Rupert Savage, F.R.I.B.A., and Mr. H. G. Wicks, A.R.I.B.A., read a paper on "The B.A.A. Excursion to Beauvais."

Mr. Wicks said the town is full of quaint streets and interesting buildings. The Cathedral is the centre of attraction and rises to a monstrous height above the surrounding buildings, dwarfing even the high towers of the Palais de Justice, which stands close by. The building is incomplete and consists of a choir, finally completed in the fourteenth century after collapsing on two occasions, transepts erected in the sixteenth century, and one bay of a nave. A tower was commenced at the crossing in 1560, but collapsed twenty-three years later and has not been replaced. The beautiful, airy choir is the highest in Europe, rising 158 ft. from the pavement to the vault, and the transepts, erected in the sixteenth century, are extremely fine examples of the flamboyant style. The north transept is less crowded with detail than the south transept, and on this account is perhaps more pleasing.

Other interesting buildings are the Church of St. Etienne, a large building with Romanesque nave and transepts and a Gothic choir, and the Palais de Justice, formerly the Bishops Palace, built about 1500.

Many old-timbered buildings still exist with their overhanging storeys, grotesquely carved brackets, and tile filling, and houses of a later date with shuttered windows and richly coloured roofs.

When the party scattered, some returned home via Paris, some via Amiens—there taking the opportunity to inspect the Cathedral, and others, more fortunate, stayed on a few days to complete their studies.

Mr. Wicks illustrated his paper with a number of lantern slides, and there was also an exhibition of the sketches made during the excursion.

At the conclusion of the paper a vote of thanks to the lecturer was proposed by Mr. Arthur Harrison, F.R.I.B.A., seconded by Mr. G. Salway Nicol, F.R.I.B.A., and carried unanimously.

Radiation Limited.

The annual meeting of Radiation Ltd. was held on the 10th inst. at the Grand Hotel, Birmingham. The balance sheet of the Company as at December 31, 1921, showed that, after bringing in £40,753 18s. 8d. brought forward from 1920, the balance of the revenue account was £169,078 1s. 9d. After deducting the interim dividends (£61,476 11s. 5d.) paid in August last, there remained at disposal the sum of £107,601 10s. 4d.

Mr. H. James Yates, in the course of his speech as chairman of Radiation Ltd., made a concise survey of the present industrial situation. The idea entertained by so many during war-time, and since, that once war was over we might work fewer hours, turn out less work per day, and yet draw more money, had been proved, he said, to be utterly mistaken, proved by, among other evidences, the present vast prevalence of unemployment. Equally mistaken had been the notions widely received with regard to money, and particularly the belief that all that was necessary for individual prosperity was to get a larger amount of income in money, forgetful of the elementary economic truth that money is in itself merely a measure of wealth, representing the real wealth—namely, the things produced by the people of the country, and that when, as at the present time, the quantity of things so produced has become less, then the wealth of the country is decreased to that extent. The first fact to recognise was that one thing and one thing only can bring back our trade prosperity—output.

Mr. Yates later appealed strongly for the better education of the working man in the interests of industry as a whole, and especially for education in elementary economics. In his own personal contact with workpeople for the past thirty years he had been impressed by the amount of native talent and intelligence among them, which had been in a great measure baulked of attaining its full fruition and utility by the want of adequate education. So strongly had he held these views that a year or two ago he was associated with several others in the starting of classes, conducted by University teachers, for men who wished to acquire greater knowledge of economic subjects which they had been unconsciously misrepresenting to their fellow-workers. So increasingly successful had the effort proved in Birmingham that similar classes had since been started in different parts of the country.

Dealing with the great improvements that had been made in recent years in the production of gas apparatus, Mr. Yates pointed out that Radiation Ltd. spent many thousands of pounds a year in research and experimental work, and it was this research work that was the driving force in the gas-stove industry. The latest result of this department of their labour would shortly be seen in the form of a new type of cooking-stove, which would greatly reduce the domestic fuel bill. Indeed, notwithstanding the fact that gas was not likely to become as cheap as it formerly was, this new Radiation cooker would enable food to be cooked at as low an actual cost for gas as was possible before the war.

B. and T. Reinforcement.

Messrs. Brown & Tawse, Ltd., of 3 London Wall Buildings, E.C. 2, inform us that Mr. T. A. Farrar, who until recently represented them in London and the South-Eastern Counties, is now no longer acting in that capacity. The following is a list of their sole agents of various districts throughout the country, and upon application to any of the names mentioned, full particulars, samples, &c., of B. & T. Reinforcement may be obtained:—

Northumberland, Durham and Yorkshire.—The Improved Roads Constructions, Ltd., 20 Saville Row, Newcastle-upon-Tyne.

Lancashire, Cheshire and North Wales.—Miller, Roberts & Co., 9 Harrington Street, Liverpool.

London and South-Eastern Counties.—Parker & French, Golden House, Great Pulteney Street, W.

Warwick, Worcester and Stafford.—J. & E. Swanne, Ltd., 36 Paradise Street, Birmingham.

Shropshire.—Wearne & Cartwright, Central Buildings Pride Hill, Shrewsbury.

Cumberland and Westmorland.—The Border Engineering Co., Ltd., Natproban Chambers, Carlisle.

General.

A mass meeting of building trade operatives held at Bath last week unanimously agreed to form a local Building Guild.

Plans for the erection of a Presbyterian Church at Leyborne Avenue, Northfields, have been passed by the Ealing Town Council.

Exeter City Council last week passed a scheme for providing a hall in a portion of the Higher Market to accommodate 1,500 persons. The estimated cost of conversion, &c., is £5,800.

As no petitions have been received by the Privy Council against the grant of a charter of incorporation to the Incorporation of Architects in Scotland, it is assumed that the grant petitioned for will be made at an early meeting of the Privy Council.

The bronze equestrian statue of the late Lieutenant-General Sir Stanley Maude, executed by Sir William Goscombe John, R.A., has been this week on view at the Burton Bronze Foundry, Thames Ditton. The statue, which will shortly be sent to Baghdad for erection in front of the gates of the British Residency, has been subscribed for by all ranks of the Army which General Maude commanded in Mesopotamia at the time of his death. It is one-and-a-quarter life size, and will stand on a pedestal and platform designed by Mr. E. P. Warren, F.S.A., F.R.I.B.A.

At a meeting of the Council of the Stained Glass Society held in London last week, Mr. Reginald Bell urged the immediate necessity of measures for its safeguarding in Great Britain. The industry, he said, was carried on in this country by over 200 producers, and there were also many designers who were not also manufacturers. Where the industry differed from many greater ones was that in spite of the general depression it was at present prosperous. Imports, though small at present, were appreciable, and should not be allowed to increase. English stained glass was universally acknowledged as of higher quality than that of any other country both in design and craftsmanship. Mr. Bell recommended that steps should be taken by the Society to inquire into the position of the industry under the Safeguarding of Industries Act.

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VOL. CVII.—2779. THE ARCHITECT MARCH 24, 1922

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Nightmares.

NIGHTMARES, however dramatic and picturesque they may seem when related, are usually attributed to a prosaic cause—the failure of the digestive organs to properly assimilate food; and it is even stated that "The Mysteries of Udolpho," a weird and fantastic romance, was written under the stimulation of a diet of raw meat. We may possibly put down many imaginative results in life to indigestion inadvertently or intentionally produced. Now even, the work of architects is occasionally a nightmare, in which case we may assume that it arises from the architect's or client's inability to assimilate some mental or artistic food. Like the author of "Erewhon," we are inclined to dogmatise, and to believe that what are considered as architectural crimes are but the manifestations of disease. In the same manner that perfect bodily digestion and perfect bodily health are practically synonymous, may not perfect design be the result of the architect's and client's digestion of architectural sustenance rather than of more complex and less easily understood processes? And if this be correct should not the architectural student consult a mental specialist to find out what food he can best assimilate, whether it should be Tudor, neo-Grec, or Baroque, and how often and in what quantity it should be taken? The parallel problem of the architect's client is more complicated, and may require longer and more careful treatment.

Now the medical student does not—like his comrade in the world of art—concentrate his attention on the contemplation of perfection, but, leaving that to the sculptor and painter, dwells on the problem of disease, and among his greatest joys is the investigation of the worst afflictions to which humanity is prone. May it not be argued that the architectural student should follow a similar course, and might he not gain more from a close study of architectural disease than he does from living in the hallowed atmosphere of the greatest monuments of history? If this be so, there is this obvious advantage: that such a study is always possible, for in an imperfect world there is more disease than health, and few buildings could obtain a clean bill of health at an architectural quarantine station. There is, to use a metaphor, many a Piccadilly Circus but only one Parthenon. The former, like the poor, is always with us; the other is far to seek. If the suggestion we make is a good one the best training for the architectural student may be found in the offices of the mediocre rather than the distinguished architect, and, as it is sometimes urged that there are more mediocre men than men of distinction, there will be no lack of opportunity, and those well versed in the forms of architectural disease will best be able to avoid its manifest dangers.

There is a possible danger that we may push our treatment too far, just as the rival medical experts portrayed by Bernard Shaw in the "Doctor's Dilemma" did, and in such a case we might fail to fill the rôle which has been occupied by the greatest men of our calling in the past.

If we are philanthropists—and almost every architect may be so described—we shall naturally think more of the public good than of our personal gratification. For this reason we strive to do good work, and when our work does not reach a high standard it must be because we have allowed our sympathy and wish to serve our clients to obscure our higher aims.

Thus our work can be divided into two categories—good work, for which we alone are responsible, and indifferent, poor, or bad design, which is the outcome of our wish to please our clients, and which we have carried out because of our kindly sympathy. From this it clearly follows that our system of architectural education is conducted on wrong lines, and that what is really required is that education of the public to which we sometimes allude in our meetings. We do not suggest that the public should be forced to join the Institute, but simply that everyone in the land should receive some architectural training and should commit to memory some creed defining an architect's nature and functions. We can imagine the pleasure of living in a world in which a railway porter would be able to discuss the Five Orders with us in the interval of waiting for a train, when no errand boy would consent to pass through a badly proportioned doorway, and no servant would light a fire in an indifferently designed grate.

But we have mentioned the architect's nightmare as distinct from architectural nightmares. The architect's nightmares are many, but we may refer to a few of them. There is the client who does not know much about building but who has friends who do, to whom he goes for suggestions—and, unfortunately, gets them! Were these suggestions made to the architect direct he could in most cases dispose of them; but his client becomes an intermediary, carrying back his defence or explanation in a garbled form to a judge who is prejudiced against him. The client often begins to feel that if he knew more about the game he could himself catch the architect out. Strained relations, inconsistent with lofty ideals of charity, supervene—and we have a case of architect's nightmare.

We have the client who, like the ancient Athenians, is always looking out for some new thing. His architect can do nothing without discussing the advantage of something he has not thought of adopting and is usually unsuitable and inappropriate. Yet, because the client and not the architect has mentioned it first, the client feels he has got his architect at a disadvantage, and the poor fellow is much in the position of a man who runs for a train with insufficient time and failing wind. This is another well-known form of nightmare.

The economical client is often a trial and discipline to those whom he employs. His architect can do nothing without being told of something somewhere else which was cheaper, and a continual stream of such reminders gradually destroys the architect's peace of mind, leaving him in the position of a convicted fool—an experience akin to a nightmare.

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The architect who builds for a client whose finances cannot well bear the strain naturally fares badly. He is placed in the position of a man who insists on his solicitor fighting a weak case. If by a miracle he wins, his judgment is justified; if not, it is human to attribute his failure to inefficient professional advice.

These and many other forms of nightmare might be described, but it suffices to say that one and all of them are obviously attributable to the client's failure to digest and understand the true nature of the sympathetic and altruistic architect he has employed.

Summing up the evidence we have briefly marshalled, we may say that architectural nightmares such as we see around us owe their origin not so much to the failure of architects, but to their superabundant sympathy for their clients, while the architect's nightmares have their origin in the failure of the client to rightly understand and estimate the full merits of the profession.

The treatment in both cases is obviously not to administer remedies to the architect, but to the general public. We are refining pure gold at our numerous architectural schools, while what is needed is to leaven the mass and make the public recognise the talent which is theirs to employ.

But touching the minor question of the education of the architectural student, we have indicated the nature of another aspect from which it may be approached. We may arrive at a definition of virtue and vice by studying either, and is it not possible that in all fields of thought it is sometimes well to adjust our views by considering not only what is, but also what is not? We have often been asked to give chapter and verse for a condemnation of bad design, which we have found difficult precisely because we have never troubled to analyse the nature of what displeases us, while we find it easy to explain the merits of what we consider good. As the proper study of mankind is man and not good men alone, so our proper study is building and not good building alone, and it is only mental laziness which leads us to restrict the extent of our survey. We are but the instruments on which our clients play their harmonies or strike discords, and what is needed is that the performer should receive a training which will enable him to appreciate our manifold merits. We can impersonally urge the considerations which individuals of our craft are too modest to urge, though they must be conscious of the truth.

Illustrations.

NOTTINGHAM CORPORATION HOUSING SCHEME. By T. C. Howitt, Architect and W. A. Kneller, Architect.
CHATHAM NAVAL BARRACKS: STAIRCASE. By Sir Aston Webb, P.R.A., Architect.
TWO SKETCH STUDIES IN DESIGN. By Kenneth Glover Architect.

Notes and Comments.

Advertising.

We are glad that the Westminster Council refused the offer of a publicity company to advertise in permanent materials on pavements. The company in question is formed for the purpose of laying pavements bearing advertisements in all parts of the world, but we should doubt whether they will meet with much success, except perhaps in some undeveloped cities in newer countries where the attraction of getting pavements for nothing, which is what we suppose the idea amounts to, may be irresistibly tempting. But such proposals are really in the same category with the cheap salt-cellars, glasses, and other household accessories which are supplied, we believe, gratis to houses of public entertainment because they bear an advertisement. We rather resent these attempts to advertise covertly, just as the advertisements which appear to be reading-matter under some pseudonym are a little irritating to the average man. We like a clever advertisement or an artistic one, but we do not like the concealed advertisement, and should regard the borough which permitted them, on the score of economy, as condoning an undignified practice.

The Placing of Posters.

"The Times" correspondence on the subject of advertisement hoarding shows the increased interest taken in these pictorial forms of display, and all sorts of suggestions are made, including that of a hanging committee. We think that among the most useful of these is that posters should be placed in frames, but we doubt whether further control is either necessary or advisable. But if frames of certain sizes could only be used in stated positions and were left there it would automatically govern the size and spacing of posters, which is what is really wanted. A number of small posters, each occupying a similar subdivision of a frame, would usually be inoffensive, and in order to encourage the use of smaller posters it would seem to be most advisable that they should be taxed on the basis of the space occupied by them. The question of size does not seem to have been raised in "The Times" correspondence, but is in reality the most important consideration of all, and one which should not be lost sight of.

What to do with Our Sons.

Mr. Maurice Adams, writing to "The Times" on the above subject, has given some good advice, he says:

"May I suggest in reply to your correspondent who asks this important question that he would be well advised to let his boy be taught a good mechanical trade, as a craftsman, artificer, or mechanical engineer, according to his natural bent? Such experience will widen out his outlook, develop his bodily strength, and prove a good standby if the worst happens. As a septuagenarian I speak from personal experience, having worked at the joiner's bench for two years before I was articled, and the knowledge I gained in builders' yards enabled me to act as a clerk-of-the-works, and as an architect I have never regretted my early practical 'little go.' The great Victorian church architect, William Butterfield, Royal Gold Medallist, was apprenticed to a Pimlico builder in 1831, and after he started practice worked in a smithy, executing some of his own designs for wrought-iron. Sir John Soane, R.A., the architect of the Bank of England, was the son of a bricklayer, and learned the builder's trade. I built my son a workshop when he was at St. Paul's School, where I took care to have him instructed in cabinet work. I articled him to a Vice-President of the R.I.B.A. He passed through the architectural schools and took his A.R.I.B.A. . . . When high prices and cost of labour stopped building enterprise all over the land, finding himself at a dead stop in consequence, he turned his attention to designing and making furniture on traditional lines, he being able at the start to do all the work himself. His venture is proving a great success, and he is all the better as an architect by being able to take a hand in craftsmanship. Robert Adam, the famous Scotch architect, designed and carried out the furniture for the mansions he built, such as Lansdowne House, Berkeley Square."

We should qualify the above by saying it is good advice for those having "clever muscles," but not applicable to the very large number of those who have no mechanical aptitude at all. But this is only what may be expected, no recipe can have universal application.

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London Art Galleries.

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The Memorial Exhibition, opened this month at the Leicester Galleries, of works by the late Claude A. Shepperson, showing well over a hundred drawings, paintings, and lithographs, is representative of an artist one of whose specially characteristic notes is his elegance of line, combined with a refinement of feeling and instinct for beauty. "He unmasked," writes Mr. Alfred Noyes, "an over-sophisticated world, and accused it, not of decadence, but of purity of line. He showed that children, even in Mayfair, may have all the graceful legginess of young colts; and that Artemis and her nymphs walk daily through Bond Street." In 1906 his first drawing had appeared in "Punch," and from that time to his recent death he was a regular contributor. The children in his drawings are delicious, the women supremely elegant, with a certain sameness of type.

I should consider as a typical Shepperson drawing his delightful lithograph of a young girl, scattering the "Roses of Victory"; and among his "Punch" jokes I would select the elderly caddie, discussing with one member of the club the indifferent play of another—"You know he don't really enjoy hisself. Its more of a religion to him than a game, so to speak." An interesting side of Claude Shepperson's work, as shown here, is his pure landscape, such as "Dartmoor," "Brockley Church," "By Helvellyn," and the charming charcoal drawing of a scene "Between Kingswear and Dartmouth." He had been elected an associate of the Royal Society of Painters in Water Colours as early as 1910, nine years before he became an A.R.A., and during his fatal illness last December was elected associate of the Royal Society of Painter Etchers. His work is always fresh, the expression of his personality, of his feeling, and love for the joy and beauty of life.

In the exhibition of oil paintings and water colours which fill the inner room in the same Galleries from the hand of Mr. Walter W. Russell, A.R.A., there is nothing which specially recalls to us the portrait of Mr. Minney, which made such a stir in the Royal Academy of 1920; though there are some good portraits of women here, among which "At the Play," with its suggestion of keenly critical appreciation, is among the best. Equally clever is the audience in "A Music Hall"; and there are several studies here both in oils and water-colour ("A View of Shoreham," "Southwick Beach," "Wharves on the Adur," and others) of a part of the Sussex coast which I know well, very effectively rendered.

The Fine Art Society has this month the decorative paintings of Mr. William G. Robb, who is successful here in his luminous effects. His "Reflections," for instance, is charming, and "A Decorative Panel" is completely what its title suggests: on the other hand, there is a good deal of sameness in such paintings as "Eventide," "By the Lake," "The Dance," "The Picnic," and yet others, with in each case a luminous sky, against which elm trees are dimly defined, and in the lower plane of the foreground figures in eighteenth-century costume. Some water colours in the same Gallery by T. B. Metteyard ("Notre Dame," "Torquay, Moonlight") are on a good level throughout.

The March exhibition at the St. George's Gallery is a very interesting display of some forty paintings and drawings by Alfred Wolmark, to which Mr. C. Lewis Hind contributes an introduction, which resolves itself mainly into a description of how the artist painted his (Mr. C. Lewis Hind's) portrait, which, as a matter of fact, we see here upon the walls. We could very well have dispensed with a good deal of this personal matter: but are fully disposed to agree with the writer when he leaves, for a moment, himself, and tells us that "Wolmark's pictures enliven my consciousness, and make me eager to enjoy the avenue of colour and decoration that he is exploring." For there can be little doubt "Wolmark's pictures enliven my consciousness, and effect, and goes for it without hesitation or flinching. The green shadow, for instance, on the nude figures in one of his oil paintings here is startling, but the colour harmony is worth the risk; and in some of the scenes taken from such modern surroundings as the electric-power station at Hampstead he gets brilliant effects of atmosphere and light. The drawings are not to be overlooked: there are only a dozen of them, but they are clean, strong, direct work, and show him as a good draughtsman as well as what he offers us in his paintings—the vision of a colourist and decorator.

At the Greatorex Gallery Beatrice Parsons is showing this month a group of water-colour drawings of gardens and landscapes in England, Scotland, and Italy, many of which possess very great charm. Miss Parsons is successful in her treatment of cultivated flowers and flower borders, and her study of crocuses in Kew Gardens and of a herbaceous border "In a Sussex Garden," wherein roses, lilies, delphiniums, and bluebells mingle their colour and fragrance have no point of the beautiful detail overlooked. Among the English gardens here I should select "Bluebells at Oxley Grange," "A Garden in the West Country," and "A Garden-gate, Porlock Bay," which last was recently acquired by H.M. the Queen; among the scenes from Italy the beautiful cloister of St. John Lateran at Rome, and the study of the famous Spanish Cloister within Santa Maria Novella at Florence. An interesting exhibition of next month at the same Gallery is that of Henry Glicenstein, sculptor and etcher, which, I understand, is to be opened by Sir Alfred Mond on April 4.

The twenty-first annual exhibition of the Women's International Art Club was opened by Miss Lena Ashwell at the Goupil Gallery, Regent Street, on Saturday last, March 18. At the Architectural Association Mr. C. J Kennedy (member of the A.A.) is giving an exhibition of his work in water colours, which will remain open till March 23.

I am informed by the authorities of the National Gallery that a new acquisition of considerable interest has recently come to our National collection. This is a portrait by Lucas van Leyden, which was one of the gems in the collection of the late Rt. Hon. Lewis Fry, for many years M.P. for Bristol, and which has been presented by his children in memory of their father to the Nation, being now on view in Room XV. at the Trafalgar Square Gallery. Apart from its singular distinction and power the picture is of value as illustrating a rare master who is not otherwise represented in our National collections.

The sale fixed for May 4 to May 8 of pictures, drawings and objects of art from the Burdett-Coutts collection at Messrs. Christies is of exceptional interest, and is creating a great deal of attention. The pictures are of the first rank, and include works by Raphael, Hobbema, Holbein; and among our English Schools, portraits by Raeburn (his famous portrait of Sir Walter Scott), Hoppner (a no less remarkable Rt. Hon. William Pitt), Lawrence (the first Earl of Minto), and Sir Joshua Reynolds (the portrait of his beautiful niece, as "A Girl Sketching"). It will be an irreparable loss to our national art if all these portraits, as they may easily do, leave this country and cross the Atlantic, never to return.

S. B.

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Modern Methods in Building Construction.—X.*

By Albert Lakeman, M.S.A., M.C.I.

Surplus Soil Transport (*cont.*).

Portable railways can be formed with various sections of rail, the weight usually ranging from 10 lb. per yard run to 20 lb. per yard. The lighter type is, of course, easier to handle, and it will answer the purpose of many contracts, but for yard work or semi-permanent positions the heavier sections will be more suitable.

HOWARD'S PORTABLE INCLINED PLANES.

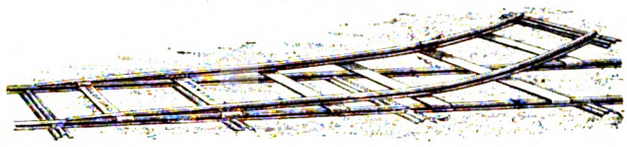


Fig. 51.

The complete outfit must include turn-tables, turn-outs, cross-overs, and wagons, and these are obtainable in different forms. A very useful feature is a portable inclined plane as illustrated in fig. 51, which is the type supplied by Howards, of Bedford.

These planes are used in place of ordinary points and crossings for throwing off branches from main lines, where frequent removals and changes in the position of the branch line is necessary.

The plane is simply laid upon the main line without disturbing it, and then connected to the branch line with curves. Turn-tables can be obtained with ball bearings or without, and with either flush rails, projecting rails, or as a plain plate without rails or grooves.

The illustration in fig. 52 shows a typical instance of side-tipping wagons, horse drawn, on a light railway, the track and wagons in this case being supplied by Messrs. Robert Hudson, Ltd., of Leeds. This firm



Fig. 52.—HORSE-DRAWN SIDE-TIPPING WAGONS.

supply many types of sleepers and various rail sections to suit different classes of work. When considering the weight and section of the rail the maximum load to be carried on any one wheel, the spacing of the sleepers, the nature of the ground, the speed of the train, and the permanency or other of the track must all be taken into account, and the type of sleeper will be influenced by the weight of rail adopted. For portable railways with rails up to 20 lb. per yard many contractors who require to move the track frequently will prefer to have the sleepers riveted on to the rails, so that a complete section can be lifted and moved quickly.

Messrs. Hudson, Ltd., supply sections of track riveted up or the rails and steel sleepers can be purchased separately, and the connections made on the site with one of the patent clips and wedges or clip-bolt systems which are simple and effective. Tip wagons can be obtained in various sizes ranging from 13½ feet cube capacity up to 200 feet cube capacity.

The large sizes are particularly useful for work in connection with steam-shovel excavation, and it will be profitable to employ the maximum size on large schemes where the industrial track is laid to provide for the use of light locomotives.

Fig. 53 illustrates a Hudson locomotive and wagons in operation, and it will be appreciated that large quanti-

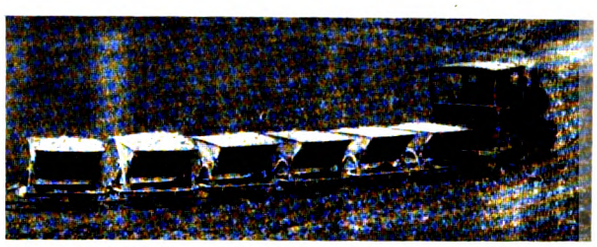


Fig. 53.—HUDSON LOCOMOTIVE AND WAGONS.

ties of materials can be quickly handled by this means of transport.

Material and locomotives for light railways are also supplied by Messrs. John Fowler and Company, Limited, of Leeds, and an example of their equipment in use is given in fig. 54. This illustration shows a light railway on which all-round tipping wagons were operated by hand for some work in Leeds which necessitated the removal of 85,000 yards of shaly earth and rock. These wagons have a capacity from ten to thirty cubic feet for manual or animal power, and they are a useful type for many classes of work. The use of industrial track is obviously not limited to soil transport alone, as it can be usefully employed for the moving of any of the material on the site from point to point as required.

As an example the illustration in fig. 55 shows a locomotive drawing flat-bottom wagons, on which are loaded several lengths of spiral reinforcement for some columns on a large contract where industrial track was extensively used all over the site with excellent results.

Trucks on standard gauge track.—The use of trucks on standard gauge track for surplus-soil removal will generally be somewhat restricted, as this method is not so flexible as the light railway system, and furthermore it involves more initial outlay on the part of the contractor if track and equipment have to be specially provided. When standard gauge track is in existence, and tipping facilities are available in the vicinity of the track, it can be successfully adopted; but such conditions will usually only be the case when the track has to be raised, or when the

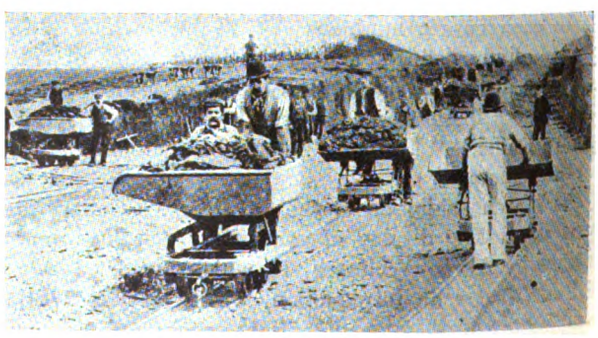


Fig. 54.—ALL-ROUND TIPPING WAGONS

* I. Introduction, Steam Shovels, Jan. 13; II. Steam Shovels (*cont.*), Trench Diggers, Jan. 20; III. Grab Buckets, Scrapers, Jan. 27; IV. Drag-line Excavators, Feb. 3; V. Derricks and Cranes, Radial Loaders, Feb. 17; VI., Surplus Soil Transport, Feb. 24; VII. Surplus Soil Transport (*cont.*), Mar. 3; VIII. Surplus Soil Transport (*cont.*), Mar. 10; IX. Surplus Soil Transport (*cont.*), Mar. 17.

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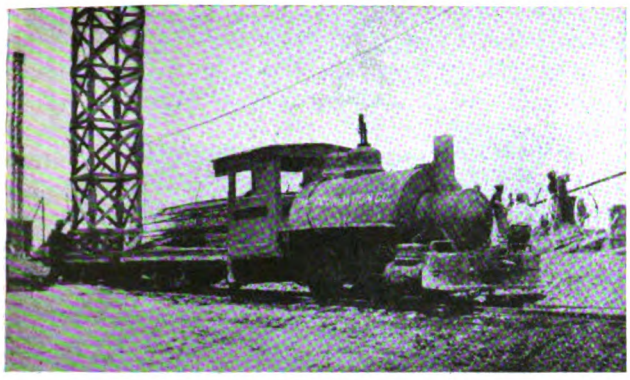


FIG. 55.—FLAT-BOTTOM WAGONS ON INDUSTRIAL TRACK.

track work is part of the scheme to be executed. If extensive permanent sidings are included in the general scheme, and filling is required to bring the rail considerably above the existing ground level, it will be economical to lay the tracks temporarily on the originial surface, and transport the surplus soil over these standard gauge tracks, to tip same at the various positions all along the line, and allow the soil to be used under the sleepers as required. By this method the tracks are gradually raised as the surplus soil is dumped, the rails being "jacked" up to permit the filling to be placed under the sleepers as it becomes available. Special standard gauge tipping wagons must, however, be adopted, as the unloading by hand from ordinary trucks will be tedious and costly while the alternative of a grab bucket operated by a locomotive crane is preferable, but far from ideal owing to the difficulty of thoroughly clearing the wagon. Large tipping wagons similar to the type used on light railways can be procured, and will be found quite suitable. A type extensively used in America is the bottom dump wagon, which has an opening bottom, and this is convenient, as the opening is released and the truck is drawn along the track by the locomotive to distribute the material over the sleepers in such manner as to avoid a large amount of hand labour when the material being dumped is used for raising the track level.



FIG. 56.—STEAM SHOVEL AND SIDE-TIPPING WAGON FOR STANDARD GAUGE TRACK.

A very good type of side-tipping wagon for standard gauge track is that illustrated in figs. 56 and 57. This type is supplied by Messrs. Ruston & Hornsby, Ltd., of Lincoln, and in fig. 56 it is shown being filled by a Ruston steam shovel, while the tipping can be seen in fig. 57. The capacity of this wagon is 4½ cubic yards, and the tipping gear consists of three curved rockers working on three flat-bottom rails. The rockers are supported on the main cross beam of the frame to ensure proper distribution of the body weight when tipping, and the body is balanced to facilitate the tipping action. It is claimed that the wagon can be brought back to normal by one man when the material is emptied, and a taper of 6 inches towards the tipping doors is given to the floor of the body to facilitate the removal of "sticky" material. The use of standard gauge track for surplus soil transport will be limited to the zone of operations in the case of an ordinary building scheme, because it will not prove

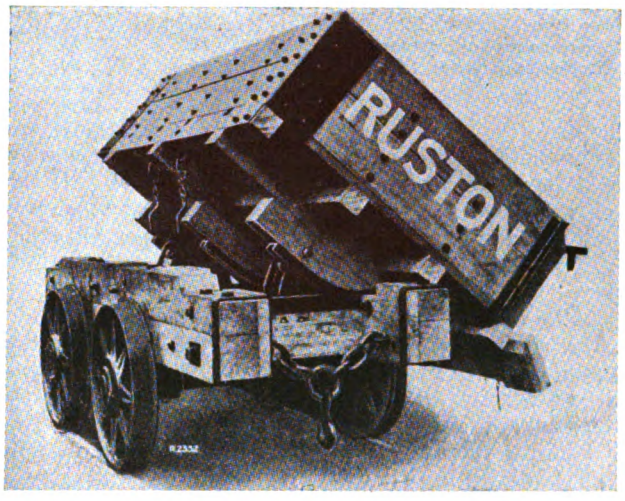


FIG. 57.—SIDE-TIPPING WAGON FOR STANDARD GAUGE TRACK.

economical to pay freight charges for moving such material over the railway company's tracks, and in addition difficulties would arise as to a suitable destination where the soil could be off-loaded direct on to a tip. No cost figures can be given for this method of transportation, as it is one which can only be adopted under special circumstances, and such special circumstances must be known and all direct and indirect charges considered before a unit figure can be arrived at. It can be described as a method which *may* be feasible on some schemes, and when such is the case it is up to the contractor to analyse the conditions thoroughly and satisfy himself that the proposition is an economical one for the particular scheme in hand.

Electrically-driven Trucks and Vehicles.—The use of large electrically-driven vehicles has not been extensively developed up to the present, but it appears likely that this type will be adopted in the future for haulage when short distances have to be covered, and when continual stopping and restarting is necessary.

An interesting example of a 5-ton electric vehicle of recent manufacture is that supplied by Messrs. Clayton Wagons, Ltd., of Lincoln, who have become well known through their steam wagons. The first vehicle after passing the works' tests was sent to Bradford, where it was delivered to the Midland Railway Co., who put same into commission. An extract from "Motor Transport" in September 1921 shows that at that period the vehicle had been doing the usual railway goods delivery work for three weeks as one of a fleet of eight of various types, and it was giving entire satisfaction. During that time it had travelled 226 miles on 300 units delivered at the switchboard, which means considerably less at the battery. Even neglecting this difference, the "fuel" cost at 2d. per unit only works out at 2⅔d. per mile, with loads varying from 4 tons to 5 tons 5 cwt. An examination of

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the records showed during the same period petrol lorries of a ton capacity doing only three and four miles per gallon on similar work, these high figures being due to the short distance stop-and-start conditions.

The approximate running costs of the 2 to 3 ton and 4 to 6 ton vehicles as prepared by the makers are as follows:—

Standing Charges—	2–3 ton Vehicle	4–6 ton Vehicle
	£	£
Interest at 6 per cent.	60	66
Depreciation at 10% (less batteries)	78	85
Tax	30	30
Insurance	10	10
Total standing charges per year ...	£178	£191
Running Costs—		
Wages	150	150
Charging current—		
5,000 miles at 1d. for 2–3 tons ...	20	—
7,000 ,, ,, 4–6 ton ...	—	29
Rubber tyres	80	80
Replacements—oil, grease, &c. ...	10	15
Batteries at 5 years' life	44	50
	£304	£324

For the smaller-type wagon the total cost per annum would therefore be £482, or £9 12s. per week. If the weekly mileage is 100 and the load carried 2 tons, this equals 200 ton-miles at £9 12s., or 11.5d. per ton-mile, and if the load is 3 tons the cost will be 7.6d. per ton-mile.

In the case of the larger type the annual cost is £515, or £10 per week, and the mileage on the figures on the running cost will be 140 per week. If the load is 4 tons the cost per ton-mile will be 4.3d., and if the load is 6 tons the cost will be reduced to 3d. per ton-mile. The last figure is extremely low, and it is doubtful if it could be substantiated in practice. The costs as presented indicate, however, that this type of locomotion can be developed to give good results for a particular class of work.

Electric traction can also be successfully applied to the transport of materials during construction over industrial or light railways, and it is claimed that the running cost will be under 1½d. per mile run. A notable type of electric locomotive that has been extensively used on construction work in this country is that made by British Electric Vehicles, Ltd., of Southport. These locomotives will haul a load of 10 tons on a level track, and can take a 3-ton trailing load up a gradient of one in 25. An example of one of these locomotives in use is given in fig. 58, which shows a train of trucks being hauled out of a large sewer excavation with a load of surplus soil, this work being done for the Bradford Corporation. The

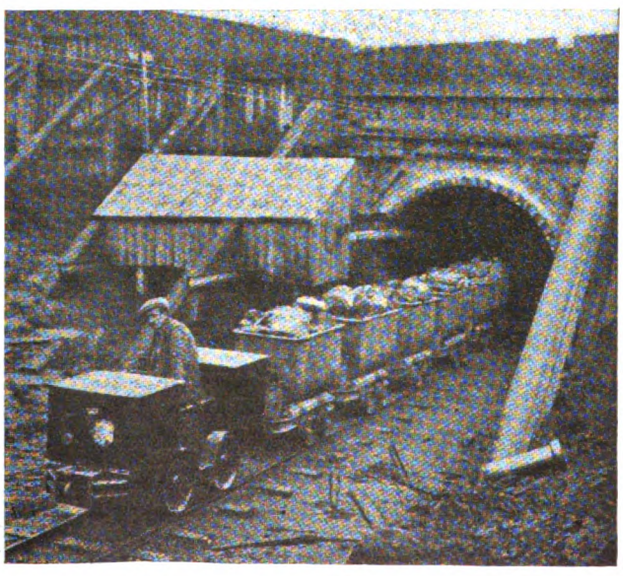


Fig. 58.—B.E.V. ICCO. HAULING TRAIN OF TRUCKS OUT OF EXCAVATION FOR SEWER.



Fig. 59.—ELECTRIC TRUCK WITH TIPPING BODY.

approximate cost of the vehicle is £450, complete with battery, and it is claimed that the sum of £10 per annum will easily cover the expenditure on renewals. As regards the cost of operation, one charge of the battery is sufficient to give a normal run of about 20 miles, half the time hauling full load and half the time hauling empties. One charge takes 14 units of electricity, and if the cost of this is taken at 2d. per unit this will work out at under 1½d. per mile run. The driving is a simple matter, and a boy or unskilled man can be employed as an operator. All moving parts are arranged to run on ball bearings, and the housings are made dust- and water-tight, while the battery is guaranteed for two years by the makers. Each locomotive can be equipped with a spare battery to enable one being charged while the other is in use, and thus no time need be lost by waiting for recharging.

The makers claim that the advantages of these electric locomotives cover the following: Low cost of operation, ease of control, efficiency and flexibility, low initial outlay, low cost of upkeep and maintenance, and low depreciation.

Fig. 59 shows the standard truck made by this firm, which is arranged to run on a light railway and is fitted with a tipping body.

This type of transport has much to recommend it, as it permits of the efficient and economical use of industrial tracks, and on a large building contract or for permanent yard railways the contractor will soon recover the comparatively small initial outlay. If the equipment already in hand includes the ordinary side-tip "Jubilee" wagons the electric locomotive can be used to haul these in place of manual or animal labour, with a considerable saving in time.

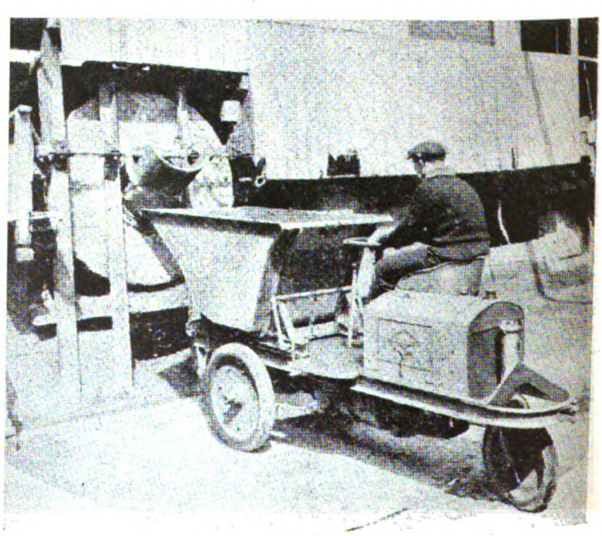


Fig. 60.—THE CLARK TRUCTRACTOR.

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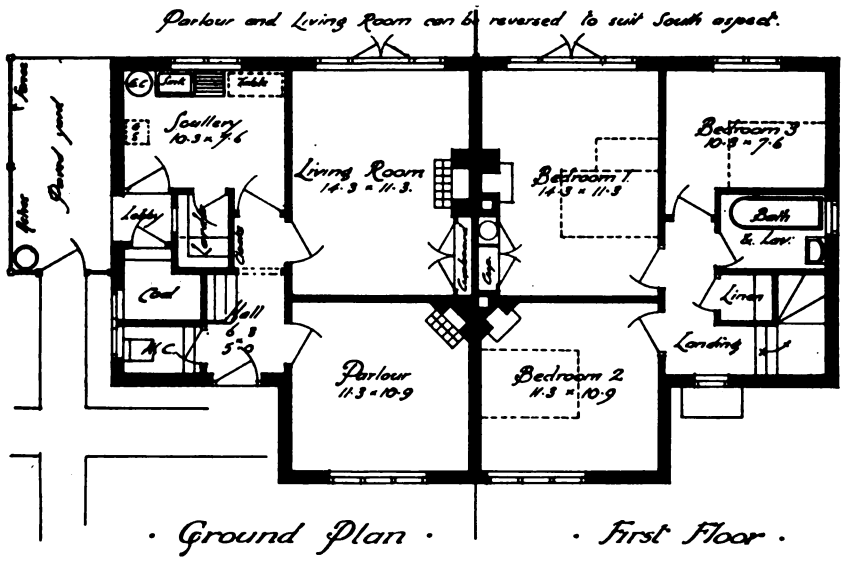
Before concluding the notes on transport it may be interesting to mention one type or method which cannot be described as coming under any of the general headings given. This type is the Clark Tructractor illustrated in fig. 60. It is sold by Messrs. Millar's Timber and Trading Co., Ltd., of Pinners Hall, London. This machine is a novel type, and it has some features of merit which have resulted in its adoption for various purposes connected with building work. The machine illustrated has a capacity of 24 cu. ft. or 2,500 lb., and it is fitted with an automatic end-dumping body, which is operated by the driver without leaving his seat. The engine of 25 h.p. is driven by petrol, and the machine is capable of being operated at any speed, varying from ½ mile to 12 miles per hour. The wheel base is 6 ft. 6 in., and the overall width is 3 ft. 10 in., while the turning radius is only 8 ft. The machine is strongly built for industrial purposes, and several different models can be obtained, while the locomotive tractor type is used in many cases for drawing several trailers, when this is an advantage. As a means for transporting surplus soil it will not be suitable where large excavating equipment is in operation, but it can profitably be employed in factory or similar work where alterations in the buildings are continually being carried on, as it will usually have good surface to travel over, and its speed and general mobility will considerably expedite the work of removing soil taken out with hand labour, and for hauling concrete and other materials from a central working yard to the place of deposit it will prove a great asset.

It will be seen from the foregoing notes on transport generally that, although this question is frequently considered as an unimportant secondary phase of a builder's operations, it is in fact a most vital subject, and worthy of serious study, if full advantage is to be taken of those methods which will result in the maximum speed and convenience at the minimum cost. Modern methods in the execution of the work on the actual structure must be accompanied by modern and economical methods of transporting the necessary materials to the site and removing therefrom all surplus soil, and this fact is too frequently overlooked.

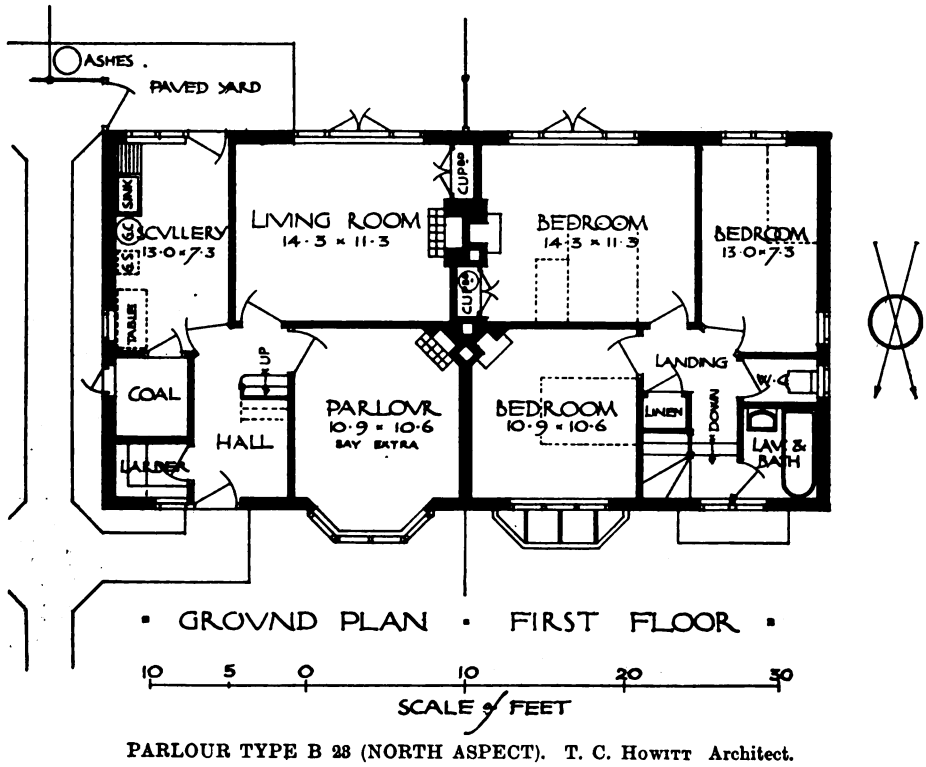
(To be continued.)

Nottingham Corporation Housing Scheme.

(See Inset Illustrations.)



ANY ASPECT, PARLOUR TYPE B 19. T. C. Howitt, Architect.



PARLOUR TYPE B 28 (NORTH ASPECT). T. C. Howitt Architect.

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Royal Institute of British Architects.

The tenth ordinary general meeting of the session was held on Monday, March 20, at 9 Conduit Street, W. Mr. Paul Waterhouse, president, was in the chair.

Mr. Arthur Keen, hon. secretary, said he had to announce with deep regret the death of Mr. Herbert A. Satchell, elected Associate in 1888, and Fellow 1906. Mr. Satchell won the Royal Institute Essay Medal in 1888, and did invaluable work on the Practice Standing Committee. The decease was also announced of: Lieut.-Colonel G. E. Holman, elected Fellow 1921; and Mr. V. A. Edlin, Licentiate 1911; Mr. H. A. Emmett, Licentiate 1911; Mr. J. M. H. Vasey, Licentiate 1912; Mr. R. G. Elwes, Licentiate 1911; and Mr. J. H. Sabin, president of the Surveyors' Institution.

Mr. H. D. Searles-Wood, vice-president, then read a paper entitled

"The Building Timbers of the Empire."

In the course of his introductory remarks, the lecturer explained that the Timber Committee of the Imperial Institute has been engaged for five years in investigating the resources of the Empire, during which time it has considered over ninety different woods, specimens of which can be seen at the Imperial Institute. Out of these it has selected forty woods, which it has reported as suitable for the building and furniture trades. These reports give the selection of the timbers of each of the countries dealt with which the Committee considers suitable for export to this country.

The Committee is careful to ascertain whether the timber can be obtained in quantities sufficient to make a commercial success if introduced into this country, and in several instances careful tests have been made before the selection has been settled.

In conjunction with the Empire Forestry Association, it is proposed to bring together samples of Empire timbers in a room devoted to timber exhibits only, so that those interested can see specimens of each kind of timber side by side for comparison, in order that users of timber can ascertain the varying characteristics of the woods, from different parts of the Empire, and obtain full particulars of each timber to assist them in making their selection. It is hoped that this permanent exhibition will be used by the public, the success of the Timber Exhibition of 1920 having shown the need of such a collection. It is also under consideration to form a representative collection of those new timbers which the Committee has selected, and send them round to important centres in the country, and R.I.B.A. Allied Societies could give valuable help in this scheme. The Conjoint Board of Scientific Societies prepared for the Royal Aeronautical Society a list of standard names. Mr. Searles-Wood gave this as an appendix, as standard names for timbers would save endless confusion, and a complete list should be made and accepted by timber users and the timber trade.

The home-grown timbers of the United Kingdom are alder, ash, beech, birch, box, chestnut, elm, silver fir, holly, hornbeam, larch, lime, oak, pine, poplar, spruce, sycamore, walnut, willow, and yew.

With regard to the soft woods, the timbers commonly used and required by architects which they understand can be grown in the United Kingdom are red wood, white wood, and American yellow pine. Scots pine was the only wood used in many of the ancient Scottish castles, where it has withstood the wear and tear of centuries, and remains sound until the present day.

Of the hard woods, at one period British timber held a world-wide reputation. British ships constructed of British oak were pre-eminent. The same timber was held in high esteem for building purposes, and was extensively employed for cabinet and other work.

In home-grown oak there are two main varieties—white and Turkey, both of which abounded in our forests in the past. Turkey oak is in many respects similar to American red oak, and is of practically no value. It runs heavily to sap, and is often shaky. In appearance it is more of an ornamental tree, and the acorn cup is spiky—not smooth, like the white oak cup.

Home-grown white oak varies enormously in texture and value, according to the district in which it is grown. For instance, oak from a county like Cornwall is small and coarse, and suitable only for wheelwrights' work. Oak from Sussex is splendid, but inclined to be hard. Oak from Northamptonshire, parts of Essex, Suffolk, Oxford, Lincoln, and so forth is of good size and mild in texture. Home-grown white oak is in demand for many classes of heavy work, but it also supplies some of the most beautiful panelling.

When wood grows old it becomes impregnated with waste products and gets darker in colour. If you compare samples of English quartered oak, you will see that the one which is cut from an old tree is much darker and richer in tone than the one which is cut from a young tree.

Some of these woods are still used for certain work, but for various reasons foreign timber had, before the war, largely displaced that of home growth, and several kinds of wood that had from time immemorial enjoyed a high reputation for strength and durability and beauty of finish were neglected by architects. Foreign woods, sometimes of distinctly inferior quality, placed upon the market in an attractive manner, came into fashion and the more solid British product was neglected. Although the importance of British oak is a tradition, architects have refused to specify British oak for panelling, flooring, and other purposes on the plea that it is unsuitable and inferior to wood of foreign growth, although roofs, staircases, and panelling of undoubted British oak are the features of many old English churches and houses, where they have stood the test of centuries.

The War created a reaction to a certain extent. Imported woods became scarce, and people who had relied entirely upon them were obliged to use the home-grown products, and they were agreeably surprised to find that they possessed virtues with which they were unacquainted. But the best home-grown timber was comparatively scarce, and, owing to the heavy cutting during the war, the stock of growing timber in the British Isles was never lower than at present. Of many timbers there is bound to be a shortage for many years, but oak, elm, ash, poplar, willow, hornbeam, sweet chestnut, beech, birch, sycamore, alder, pine, spruce, larch, and silver fir are trees that will provide a large quantity of timber for building purposes.

It is essential that the timber resources of the United Kingdom should be increased, but if timber must be grown it must be on business lines, and in time the National Forest Service and the privately owned forests must be self-supporting and capable of producing a dividend on invested capital. To help in this, users of wood should insist on home-grown wood being used wherever possible, and architects are especially asked to see to this when specifying for buildings.

The architect's difficulty in regard to the use of home-grown timber for building purposes is the lack of "availability" due to the defective organisation of the home-grown timber market, and to lack of "reliability" due to bad afforestation.

One of the chief points is the defective transport facilities of the country, and until this is thoroughly overhauled perfect organisation in other directions will be heavily discounted.

It is essential that home-grown timber should be put on the market in a mature condition, properly graded and in recognised standard scantlings marked with the year of felling, properly seasoned and of good quality, sold in yards which are well situated for transport, and in sufficient quantity to supply a reasonably large demand.

Reliable estimates should be made of the timbers available in this country for building purposes, and tables prepared for the next fifty years until timber planted now is ready for the market. These tables should be in the

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hands of every timber merchant. Emphasis should be laid upon the principle of the supply creating the demand rather than the demand creating the supply.

The question of soft woods is more urgent than that of hard woods. Forests are being depleted in Europe and America, and immature and dead timber is finding its way on to the market in increasing quantities.

The best timber for building purposes is the Scots Fir (*pinus sylvestris*). It grows in the United Kingdom from 60 feet to 120 feet in height, and with trunks 1½ feet to 3½ feet in diameter. It is imported from Northern Europe under various names, such as red and yellow deal, redwood, and deal with the names of various ports as prefix. The use of the word "fir" in connection with this wood should be discontinued, for it has nothing to do with the tree fir. As this timber is the standard on which the constants in our formulæ are based, and the scantlings of the various converted timbers are cut in the search for new sources of supply for soft woods for building purposes, Pinus Sylvestris has been used as the control for the comparison of strengths. Most of this wood comes from the Baltic and White Sea, and until the European forests are more cut it will be difficult for the Empire timber to compete in price, as freights from Eastern Canada in normal times are from 20 to 30 per cent. more than from the White Sea, 25 to 50 per cent. more than from Sweden, Petrograd, and Riga. From Western Canada freights are more than double that from Eastern Canada.

The great factor in all questions of the use of a bulky and comparatively cheap article like constructional wood is the freight, and even though the Panama Canal has reduced the time a vessel with a Pacific wood cargo on board occupies in her voyage, the difference in the distance the wood has to come will probably curtail the use of it for a long time. When freights become more equal, then the Pacific mills will lay themselves out to cater for the English markets. At present from 1 to 2 per cent. of their output only comes to Europe.

From Canada the principal soft woods are spruce, Douglas fir, Western hemlock, and white pine.

The principal commercial woods which have been exported from Australia include jarrah, Karri, tuart, and wandoo from Western Australia; and ironbark, grey gum, tallow wood, blackbutt, spotted gum, blue gum, stringybark, ash and swamp gum, and turpentine mainly from New South Wales and Tasmania. Many of these woods are well known in this country and in other parts of the world (notably South Africa and India), where they have been used for piling, heavy construction work, railway sleepers and wood paving. Other timbers—*e.g.*, black bean, blackwood or fiddleback, rosewood, silky oak—are also highly valued for decorative purposes, though not so well known.

We are informed that New Zealand has no wish to cultivate an export timber trade, as all the timber produced can be absorbed locally.

Apart from teak, overseas timber exports from India have been relatively small. The greater part of the outturn of timber is used locally and hitherto has been supplemented by large imports, of which a considerable proportion (chiefly coniferous soft-woods) is derived from Europe. It seems probable, however, that with the improved means of extraction and transport and satisfactory seasoning and treatment of the woods produced, the greater part of the needs of the country could be supplied from local forests (notably those of Burma), and leave available a surplus of valuable "jungle-woods" (*i.e.*, timber other than teak) well suited to the requirements of overseas markets. This question is engaging attention, and it is interesting to note the statement that fully 85 per cent. of the timber purchased by the Indian Munitions Board during the War for military purposes was the produce of the country. Hitherto, Indian timbers have remained little known outside India. In this country, in addition to teak, East Indian rosewood or blackwood, Andaman padauk, Eng, and Moulmein cedar are the best known; while less familiar timbers are East Indian walnut, gurjun, pyinma, Burma padauk, and thatka or Moulmein mahogany. In America teak, Andaman padauk, and rosewood are well known, and East India walnut, also known as koko or kokko, black chuglam, white chuglam, and Andaman marble-wood have also been imported. There would appear to be little doubt, however, that, provided the woods can be exported in fair quantities and at a reasonable price, the intrinsic merits of a considerable number of Indian woods would secure for them a valuable market in this country.

Practically the whole of the timber hitherto exported from British West Africa has been sold as "mahogany," though certain other woods—*e.g.*, iroko or West African teak, African walnut, African padauk—are more or less familiar to a section of the timber trade, though the majority of these woods remain practically unknown to timber users in this country. It is interesting to note that before the War West African timbers were far more widely used and appreciated in Germany than in the United Kingdom. At the present time, however, there are indications that the merits of selected West African woods other than "mahoganies" are receiving recognition in this country, and it is probable that, under favourable conditions as to freight, felling dues and forest transport, these timbers will find a regular market in this country for a variety of useful purposes.

Mr. Searles-Wood gave a detailed account of the timbers of these countries, and concluded with those of British Guiana and British Honduras.

Discussion.

The Rt. Hon. Sir Joseph Cook, G.C.M.G., P.C. (High Commissioner for the Commonwealth of Australia), in proposing a vote of thanks, confessed he had heard that evening a great many things about Australian timber which he did not know before. However, his nearest approach to being a timber expert lay in the fact that one of his sons was not only a member of the Royal Institute of British Architects, but was also an inspector of public works in Melbourne, and, therefore, knew all about the subject. No mention had been made of Queensland maple, though there was no finer furniture in the world than that made from that tree. He hoped an eye would be kept in this country on Australian timbers because they had every variety there.

Professor Wyndham R. Dunstan, C.M.G., F.R.S. (Director, Imperial Institute), in seconding the vote of thanks, said Mr. Searles-Wood had done a very great service in bringing to the notice of architects the fact that there are numerous woods in the British Empire adapted to building purposes. It ought to be added there are also other woods which deserved to be known for their decorative qualities. It had become almost a platitude to say we ought to develop the resources of the Empire in timber. But it was surprising how little had actually been done. The lecturer had told them that in the two principal buildings now being erected in London such of the timber as was not English had been imported from abroad. And such a thing was happening in 1922! In detail this problem was exceedingly complicated. There were on the face of it a number of timbers which ought to be generally used, but which on investigation prove to be at the moment commercially impossible. In a number of countries very valuable timber is being put to various unimportant uses, and even being burnt as fuel. Paper, for example, might be made of bamboo or similar reeds. Existing information on this subject required to be brought together and the true facts ascertained. Mr. Searles-Wood was the chairman of a committee which had this subject in hand, and had selected a few of the most important timbers of the Empire in order to find out definitely what quantities exist, at what cost they can be supplied, and for what purposes they are particularly suitable. The committee had already done very important work.

Sir Edgar Walton (High Commissioner for the Union of South Africa) remarked that in South Africa, after some generous deafforestation, they were embarking on a policy

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of reafforestation. In that country there was an enormous demand on local timber for mining props and similar purposes. But they were now adopting the system of using cement props instead of those of wood. There did not seem enough keenness in the Empire to see that British goods are being used. That was a principle they would find it more and more necessary to adopt and stand by. They ought to refuse to be led aside to use other materials.

Mr. H. O. Weller thought Canada had set an example to the Empire in their pamphlet on Douglas Fir. Australian timbers had been in use in India for twenty years.

Mr. W. E. Vernon Crompton stated that 90 per cent. of the Canadian export output was going to the United States at present, and soon the whole of it would go. This country would then be dependent for conifers, or soft woods, upon Russia.

Mr. Alan E. Munby said he would like to pay a small tribute of thanks to Mr. Searles-Wood. The R.I.B.A. knew what a lot the lecturer did for the profession, and of the many committees on which he served. His paper had been an epitome of its subject, and was one to which reference could always be made in the future.

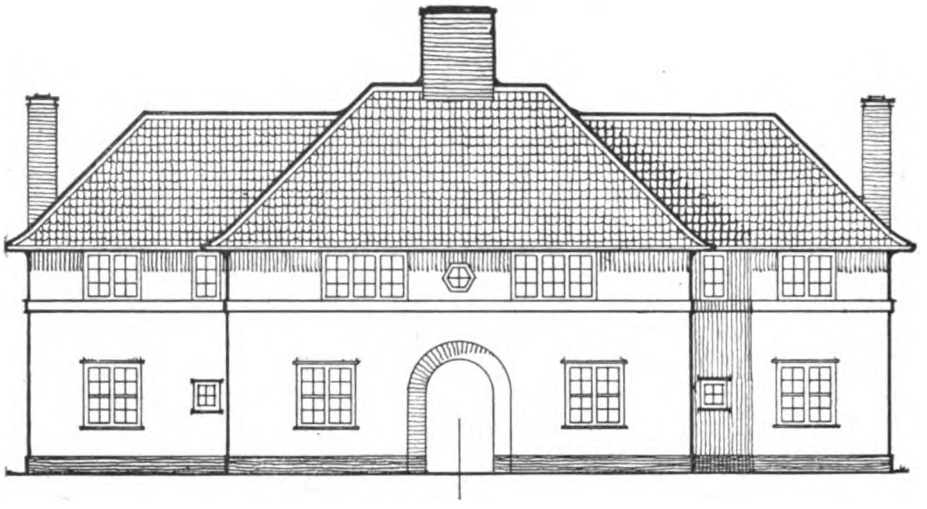
Mr. Waterhouse, in putting the vote of thanks from the chair, said we in this country were very unenterprising and timid about timber. An architect's knowledge of the subject was far short of what it ought to be. Mr. Searles-Wood's paper contained a very large range of information.

The vote of thanks was then carried by acclamation.

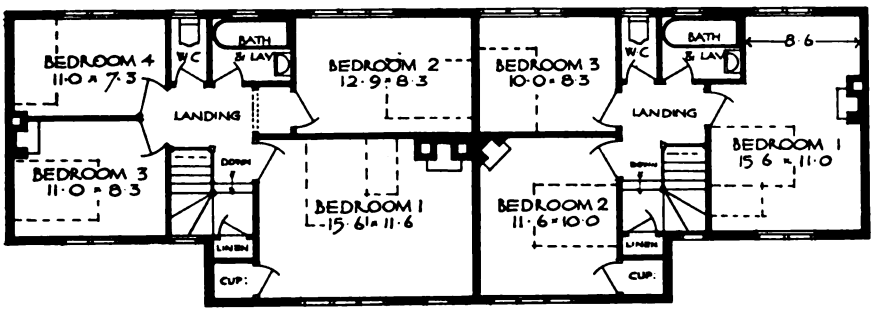
Mr. Searles-Wood having briefly responded, the meeting then terminated.

Nottingham Corporation Housing Scheme.

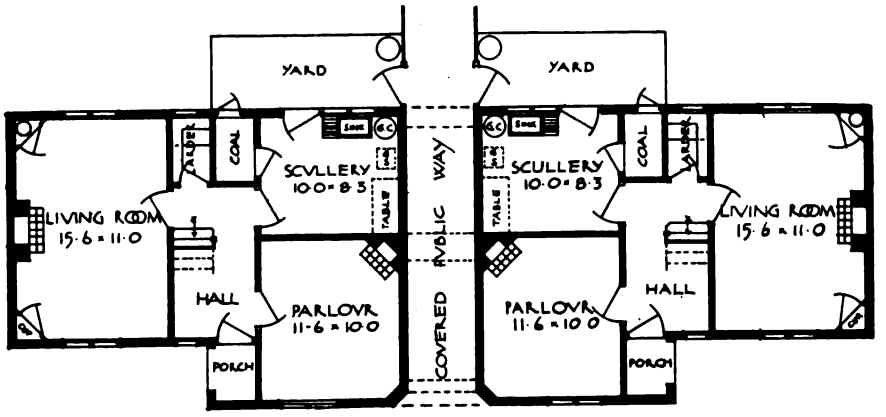
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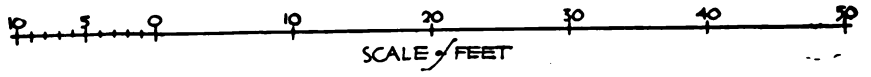
• ELEVATION •



• FIRST FLOOR •



• GROUND PLAN •



DESIGN TYPE B 28. T. C. HOWITT, Architect.

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UNIV. OF
CALIFORNIA

CHATHAM NAVAL BARRACKS: STAIRCASE.
SIR ASTON WEBB, P.R.A., Architect.

INK PHOTO" (UPRAGE HAYCOCK PRINTERS) LTD 69A TO DEAN STREET LONDON W.

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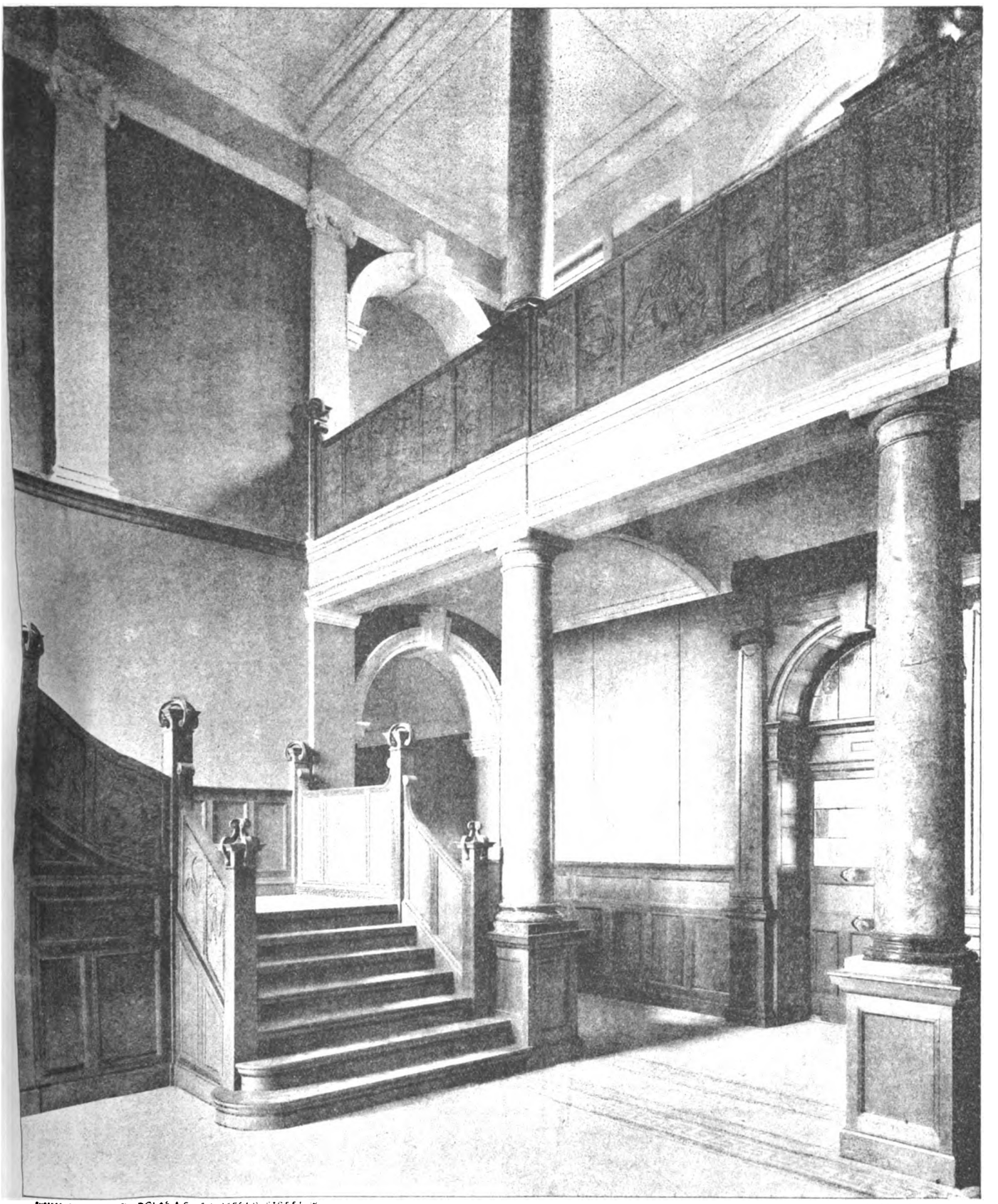
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CHATHAM NAVAL BARRACKS: STAIRCASE.

SIR ASTON WEBB, P.R.A., ARCHITECT.

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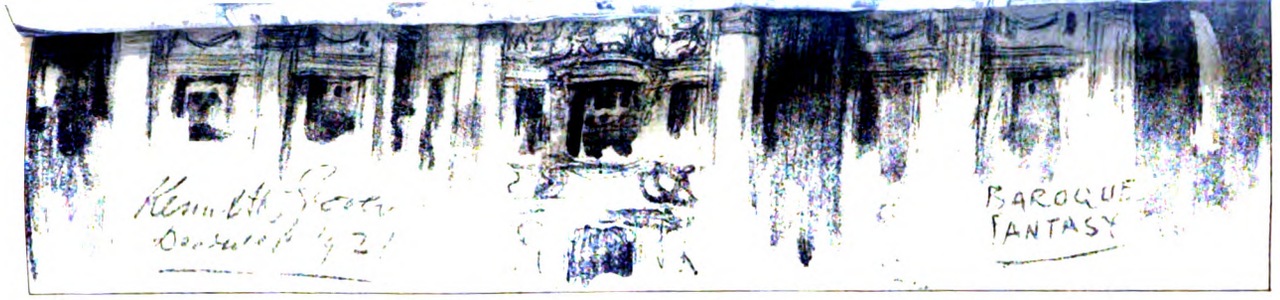
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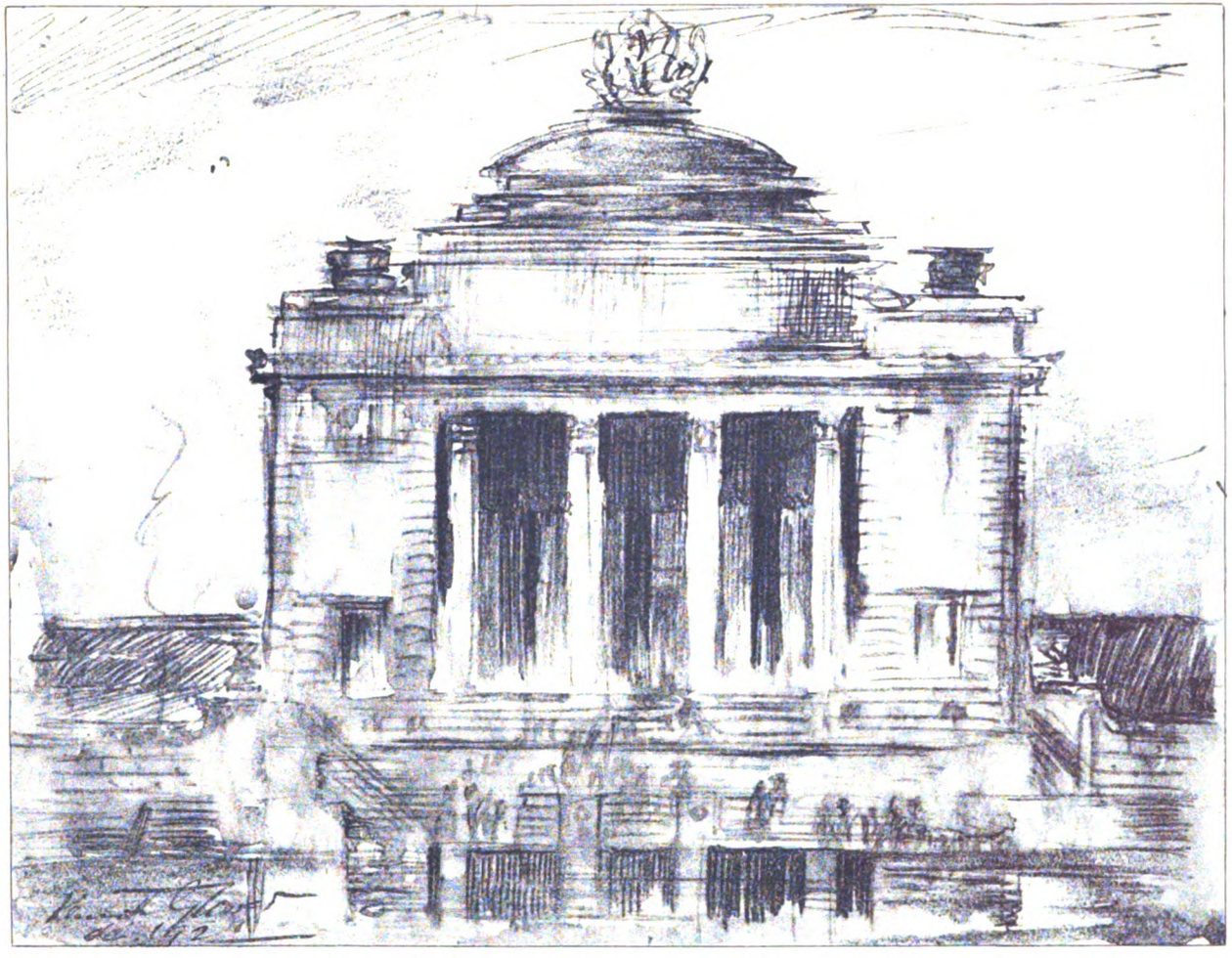
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A BAROQUE FANTASY.



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TWO SKETCH STUDIES IN DESIGN.

By KENNETH GLOVER, Architect.

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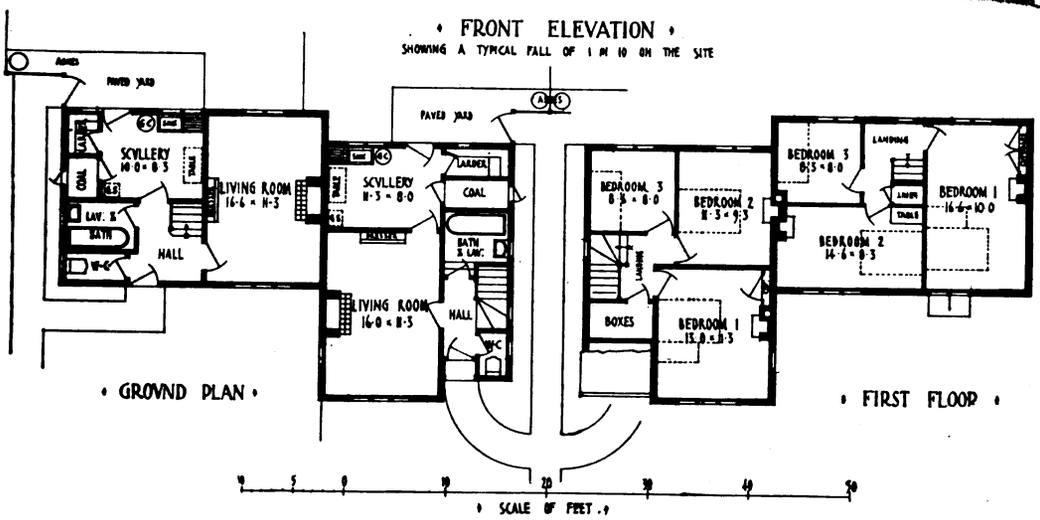
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Nottingham Corporation Housing Scheme.

(See Inset Illustrations.)

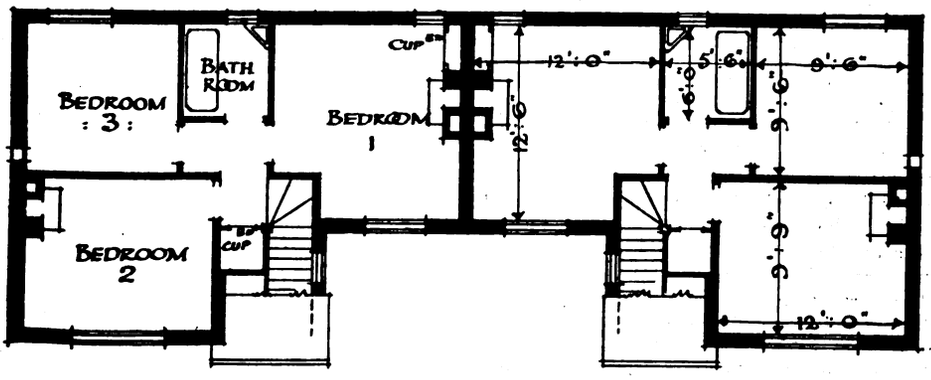


FRONT ELEVATION
SHOWING A TYPICAL FALL OF 1 IN 10 ON THE SITE

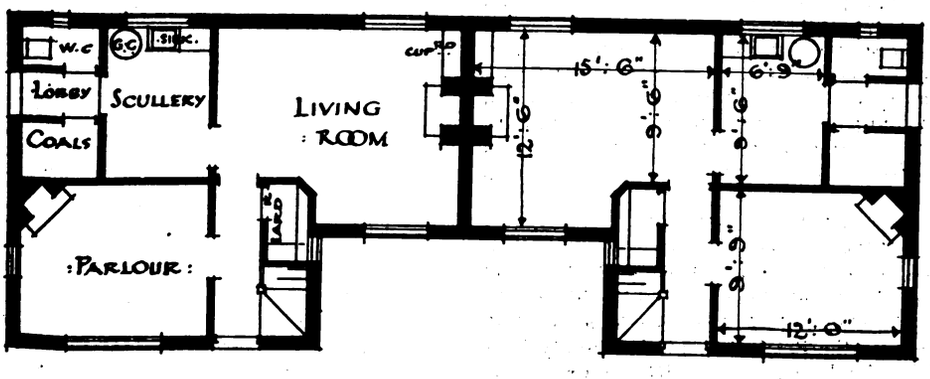


GROUND PLAN — FIRST FLOOR

DESIGNS TYPES A 18, A 18 1. T. C. HOWITT, Architect.



FIRST FLOOR PLAN



GROUND PLAN

DESIGN TYPE B 7. W. A. KNELLER, Architect.

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Correspondence.

Unification and Registration.

To the Editor of THE ARCHITECT.

SIR,—The R.I.B.A. Council have been informed that a good deal of misunderstanding exists, particularly among members in the provinces, as to the steps that have been taken in furtherance of the policy of Unification and Registration, and as to the present situation. They have therefore directed that a short statement should be issued for the information of members.

It will be recalled that ever since the year 1905 the R.I.B.A. has been pledged to a policy of Statutory Registration, and various schemes have been prepared in order to enable a Registration Bill to be presented to Parliament with reasonable prospects of success. During this period the provincial societies generally have lost no opportunity of repeating their conviction of the urgent necessity for Statutory Registration, and their anxiety to assist in furthering the Registration policy.

At the end of the war the R.I.B.A. Council were again assured, through the resolutions of the provincial bodies and through the medium of the professional Press, that the members of the R.I.B.A. and of the Allied Societies were as firmly convinced as ever of the necessity for Registration. At the same time, the opinion was generally expressed that the unification of the profession was an urgent necessity in the interests of architects generally and also as a means towards the attainment of Statutory Registration.

It is clear that, by linking up all sections of the profession and giving a central council power to act on behalf of all, the action of the profession in public matters must be enormously strengthened. Not only is the question of Registration affected, but also all matters of architects' charges, conditions of competition, the relations between the profession and public bodies, action in legal cases, the regulation of professional practice, and the important matter of education. It is obvious that, when legislation affecting the profession is dealt with in Parliament, or when Government Departments seek the services of architects, a united profession can exercise influence and pressure that would be impossible in the absence of unity of action. All the competent advice that has been given on the question of Registration by Act of Parliament goes to show that united action is essential to success, and therefore the Council are convinced that Unification must be the first step.

The Council accordingly invited the whole profession to form a completely representative body for the purpose of drafting a scheme for the Unification and Registration of the profession. This step was hailed with unanimous approval and the Committee was formed. It contained representatives of all classes of the Royal Institute and delegates appointed by the Council of every architectural organisation of any importance in the Empire. The Society of Architects, the Architectural Association, the Official Architects' Association, the twenty allied societies in the United Kingdom, the ten Allied Societies in the Dominions, the Assistants' Union and the Ulster Society of Architects all took part in the formation of the Committee, and a general meeting of unattached architects also elected representatives. The resulting body of sixty-six members was the most completely representative body of architects of the Empire that had ever come together.

The Committee began its work in July 1920, and after considerable discussion it issued an interim report on May 12, 1921, for the consideration of the Councils of the R.I.B.A. and of the Society of Architects. This Report, which had the almost unanimous support of the whole Committee, was, in effect, a recommendation that Unification of the profession should be effected by the inclusion of qualified architects in the R.I.B.A. rather than by the formation of a new and independent outside body to govern the profession.

The Committee requested the Council of the R.I.B.A. and of the Society of Architects to enter into negotiations and to find out whether, as a first step, a basis could be found for the absorption of the Society into the membership of the R.I.B.A. *This is the stage which has now been reached.* Committees representing the R.I.B.A. and the Society have discussed a provisional scheme, a Committee representing the Associates is now discussing this scheme in detail, with a view to its approval or amendment by the Associates. The Licentiates' Association has been considering how the interest of the Licentiate class would be affected.

No binding decisions of any kind have yet been made.

Alternative suggestions are being carefully weighed by the various Committees, and exhaustive discussion and the consultation of many interests will be necessary before any definite conclusion can be arrived at. It will only be at the termination of these discussions that the general body of the R.I.B.A. will be asked to consider the Council's ultimate conclusions and to give a definite verdict upon them. Before they are asked for that verdict the fullest and most detailed information will be supplied to them, and ample notice will be given of the meeting or meetings at which the subject will be discussed. As the matter is one deeply affecting the interests of members, it would not be fair that the decision upon it should be made at a meeting in London which could only be attended by a very small proportion of the provincial members who form the great majority of the R.I.B.A., and it is the Council's intention to take a postal vote on the subject, so that every member of the Institute will have an opportunity of expressing his opinion.

In the meantime the Council desires to make a special appeal to members to suspend judgment until a scheme has been prepared for their consideration by their own representative committee, and to ignore the premature agitation which has been set on foot by a certain number of members who are attacking proposals that have not yet been worked out by the responsible Committees or placed before the members.

It is not by the vote of some 6 per cent. of the corporate members at a specially requisitioned meeting in London that this great and complex question can be settled, but by the considered opinion and the deliberate vote of the whole body of members when a scheme is finally placed before them.

It appears to have been rather generally but groundlessly assumed by the opponents of Unification that it implies:—

(*a*) the advancement to the full privileges of the R.I.B.A. of all the outside architects of whatever qualifications, and

(*b*) the loss by the Associates of all the prestige attaching to them as possessors of the hall-mark of examination.

The scheme of Unification, when issued, will show how these two points, which are of the greatest importance, are intended to be dealt with.—Yours, &c.,

IAN MACALISTER, *Secretary.*

The Royal Institute of British Architects.

Registration and the Rights of Associates.

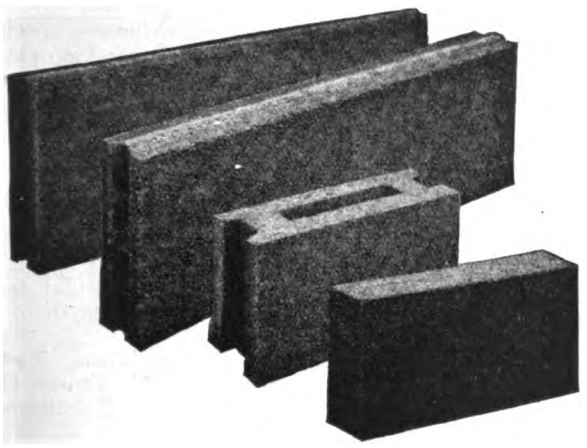
SIR,—As officers of the R.I.B.A. Defence League we have been considering Clause 28 of the Charter of 1887, which states that, although Associates can take part in a debate on any proposal to alter our constitution, "no Associate shall be entitled to vote in the making and adapting, altering, revising, suspending, or rescinding of any bye-law." Consequently, if the scheme of the Unification and Registration Committee were submitted to the full body of the Institute for approval no Associate would have a right to vote, and Fellows alone would decide it. At the present time there are about 962 Fellows and 2,173 Associates, and to allow such a scheme—in fact, any scheme—of drastic alteration to our constitution to be settled by the Fellows alone would, we submit, be grossly unjust to the majority of the men in the Institute. Consequently, we propose at an early date to submit a requisition for a special general meeting to express an opinion that the portion of the by-law quoted above should be deleted from our Charter at the earliest possible date, and in doing so we shall rely for support upon all members of the League, and also upon all others, who may differ from us as to the proper procedure towards Registration, but who will probably support a proposal which we submit should recommend itself to every member of the R.I.B.A.—Yours, &c.,

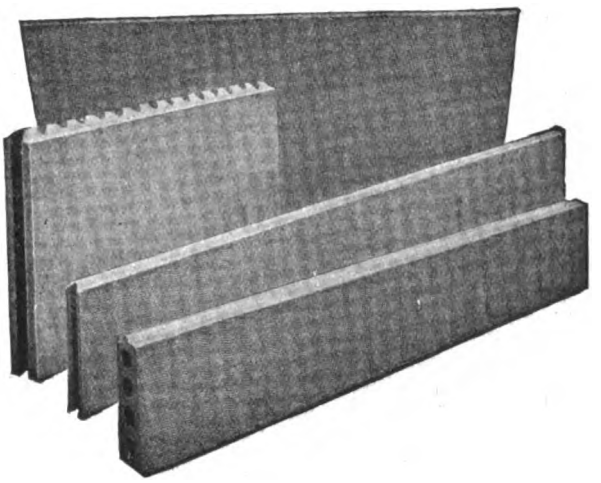
ALFRED W. S. CROSS, V-P.R.I.B.A.
Chairman.
H. D. SEARLES-WOOD, V-P.R.I.B.A.
Vice-Chairman.
GEORGE HUBBARD and SYDNEY PERKS,
Hon. Secs.

The Royal Academy announce that they will shortly proceed to elect one Turner annuitant. Applicants for the annuity, which is of the value of £50, must be artists of repute in need of aid through unavoidable failure of professional employment or other causes. Forms of application can be obtained by letter addressed to the Secretary, Royal Academy of Arts, Piccadilly, London, W.1. They must be filled in and returned on or before Friday, March 31.

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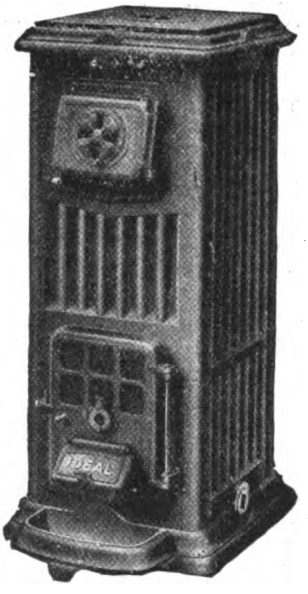
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Henry Saxon Snell Prize.

The Henry Saxon Snell Prize was founded to encourage improvements in the construction or adaptation of sanitary appliances, and is awarded by the Council of the Royal Sanitary Institute at intervals of three years, the funds being provided by the legacy left by the late Henry Saxon Snell (Fellow of the Institute).

The prize in the year 1922 will consist of fifty guineas and the medal of the Institute, and is offered for an essay on "Improvements in the Sanitary Appliances and Fittings for new Housing Schemes, having regard to Efficiency and Economy."

General Conditions.

1. The essay to consist of not more than 5,000 words, to be typewritten on foolscap, one side only, and to be illustrated by drawings or sketches.

2. Two competitors may combine in sending in an essay and drawings.

3. Essays must be delivered on or before August 31, 1922, addressed to the Secretary of the Royal Sanitary Institute, 90 Buckingham Palace Road, London, S.W. 1, and the following points must be observed:—

(*a*) The essays to be submitted without the name of the competitor.

(*b*) The essays to bear a motto, legibly marked on the right-hand lower angle of the first sheet.

(*c*) The essay to be enclosed in an envelope bearing the words "Henry Saxon Snell Prize," and the competitor's motto at the right-hand lower angle, and to be directed to the Secretary of the Royal Sanitary Institute.

(*d*) The essays to be accompanied by a letter containing the competitor's name and address, which is to be enclosed in a separate envelope, sealed with a blank seal, and having on the outside "The Henry Saxon Snell Prize," and the same motto as that attached to the essay submitted.

4. Should none of the essays be considered of sufficient merit or importance to deserve the prize offered, the Council reserve the right of withholding the award.

5. In the event of two essays being of equal merit, the prize may be divided.

6. The essay or essays to which the prize is awarded are to become the property of the Institute.

Should the Council decide to publish the essay or essays to which the prize is awarded notice will be given to the competitor or competitors in order that patent rights may be secured, if desired, for any of the appliances mentioned in the essay or essays.

7. The carriage of the essays to and from the office of the Institute, and all expenses incidental thereto, must be paid by the competitor. Unsuccessful essays will be returned on application, on the production of a formal demand within a period to be specified after the close of the competition.

8. Due care will be taken of all essays, but the Institute will not be responsible for any loss of or damage to them while they remain in its keeping.

Wages and Hours.

The National Wages and Conditions Council for the Building Industry, at its meeting on March 17, considered what variation in wages payable to operatives engaged in the building industry should be made to meet the abnormal conditions prevailing; consideration was also given to the question of the length of the working week. The Council resolved:—

"That a reduction of twopence (2d.) per hour shall take place on and from April 1, 1922, and a further reduction of twopence (2d.) per hour on and from June 1—both reductions to be on account of future adjustments rendered necessary by the operation of the sliding-scale agreement.

"The working hours for the months of December and January to be reduced to 41½ per week, and the further consideration of the alteration of the summer working hours to be deferred until the January (1923) meeting. In the event of failure at that meeting to agree on the question of the length of the working week, the employers' present position as respects that question is not to be prejudiced. The operatives to have the opportunity of confirming the second reduction above mentioned. In the event of the operatives failing to agree to the second reduction, the employers' present position with regard to the working hours is to remain unprejudiced.

"In the application of the second reduction special consideration to be given by the Council, or a Committee thereof, to the mitigation of the incidence of the reduction upon the wages of the lower-paid districts, and especially where the hourly rate of building trade labourers would be reduced below the rates obtaining under the Civil Engineering awards."

Forthcoming Events.

Saturday, March 25.—Institution of Municipal and County Engineers. Meeting in the North-Western District at Blackpool Town Hall. 11 a.m.

Monday, March 27.—Architectural Association. Meeting at 34 and 35 Bedford Square, W.C. 1. Address by Mr. Gilbert Bayes entitled "The Treatment of Sculpture in Architecture." 8 p.m.

Tuesday, March 28.—Illuminating Engineering Society. Meeting at the Royal Society of Arts, John Street, Adelphi. Discussion on "The Lighting of Public Buildings: Scientific Methods and Architectural Requirements." 8 p.m.

Thursday, March 30.—Chadwick Public Lecture at 9 Conduit Street, W. Mr. H. E. Stilgoe, M.Inst.C.E., will speak on "Water: Its Distribution and Use." 8 p.m.

Competition News.

Messrs. Crosse & Blackwell offer a prize of twenty guineas for the best design for a coloured label for jam-pots. Designs for competition must reach the Secretary, Design and Industries Association, 6 Queen Square, London, W.C. 1, not later than March 25. The adjudicating Committee, whose decision is final, will be: The President of the Design and Industries Association; Mr. T. Geoffrey Blackwell, O.B.E., and Mr. Charles Holden, F.R.I.B.A.

The Great Western Railway Company announce an open poster-design competition. Designs are invited for posters in colours which will bring before the public the outstanding claims of the Cornish Riviera. Three prizes are offered, first, 100 guineas; second, 75 guineas; and third, 50 guineas; and the designs will be considered and selected from the standpoint of their combined artistic and advertising value. The Design and Industries Association have consented to act as judges of the competition, and the association's nominees are Sir Kenneth Anderson, Mr. Harold Stabler, and Mr. C. H. Collins Baker.

The "Architect" Fifty Years Ago.

March 23, 1872.

A question which, without doubt, has perplexed the minds of many, has been lately put, somewhat naïvely, but clearly, to a few of the leading architects of the day, by a prominent and highly respected member of a numerous and influential body: this was, "*Whether it be better to choose an architect for a public work without competition, or by means of a limited, or by an open competition?*" The *naïveté* of the query, while evident to the professional mind, is, we fear, by no means so to the general public; and we believe that a perfectly opposite, yet in each case *bonâ fide* opinion would be given by an architect, and any member of a committee for a proposed building.

The former who writhes under, while he bows to, the system of competition so much in vogue, seeing that no other road to distinction is open to him, will unhesitatingly denounce it.

On the other hand, so accustomed has the public mind grown to the fascinating spectacle of seeing architects greedily competing one with another for even very insignificant works, that they can no more forgo the pleasure of setting them by the ears, than would country gentry relinquish the slaughter of their game to their keepers. Not until advancing intelligence and the efforts of the schoolmaster abroad have consigned this cruel relic of barbarism to the limbo, whither bull-baiting and the cock-pit have gone before, will the pastime cease to have charms for gamblers, whether principals in or spectators of the contest.

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Royal Institute of British Architects.

The following provisional programme has been arranged by the South Wales Institute of Architects for the R.I.B.A. Conference in Cardiff, June 8, 9, and 10, 1922:—

Thursday evening, June 8, 8.30 p.m.—Reception by the Lord Mayor of Cardiff (Councillor F. H. Turnbull) at the City Hall. An exhibition of prints and photographs of Cardiff, old and new, will be on view.

Friday morning, June 9, 10.30 a.m. to 11.30 a.m.—Paper by Major Harry P. Barnes, M.P., F.R.I.B.A., on "Unification and Registration." 11.45 a.m. to 1.0 p.m.—Visit to City Hall and Law Courts, Cathays Park.

Friday afternoon, 2.30 p.m. to 5.0 p.m.—Visits to Welsh National Museum and Glamorgan County Hall.

Friday evening, 7.0 p.m. for 7.30 p.m.—R.I.B.A. banquet.

Saturday morning, June 10, 10.0 a.m. to 11.15 a.m.—Paper by H. T. Buckland, Esq., F.R.I.B.A., President of the Birmingham Architectural Association, on "Civic Architecture and Advisory Art Committees." 11.15 a.m. to 12.30 p.m.—Paper by Percy Thomas, Esq., O.B.E., F.R.I.B.A., President of the South Wales Institute of Architects, on "Problems of Practice."

Saturday afternoon, 2.0 p.m. to 6.0 p.m.—Visit to Cardiff Castle and grounds. 4.0 p.m.—Tea in the Castle grounds, by kind invitation of the Marquis of Bute.

Saturday night, 8.0 p.m.—Smoking concert.

Sunday, June 11.—Arrangements are in hand for a charabanc tour to Tintern Abbey and the Wye Valley for those members who stay in Cardiff over the week-end.

Sliding Doors.

There is a growing number of people who look with marked favour at the merits of a sliding door when contrasted with a hinged door. In its early years, however, sliding doors were so crudely constructed that they introduced as many difficulties as they set out to eliminate. Improvements were continually introduced, until it may be claimed that, thanks to well designed and carefully manufactured tracks, brackets, ball-bearing swivelling trolley hangers, and other patents, any type of door can be easily operated without encroachment upon neighbouring floor space.

Amongst the firms who specialise in this sliding-door equipment are Messrs. P. C. Henderson, Ltd., of West Bank Works, Barking, London, E., who have recently issued a most instructive catalogue (No. A 23). This includes full information and drawings relative to their improved section of tubular track, accordion and partition gear for screens, carriage-door gear, domestic gear, curtain hangers, and garage-door hangers of every description. Their exclusive designs, embodying "Around-the-Corner," "Across-the-Corner," and "Council" door hangers effectively replace roller shutters, and will go far to make sliding-door gear as sweet running and perfect as possible.

The designs are very ingenious, more especially their "Around-the-Corner" door fittings, by means of which a door can be slid around the corner, taking up no space in doing so—lying flat against the wall inside, and completely out of the way from wind and wet. Further, when this door is closed, a section of it can be opened independently like a foot door, allowing anybody to enter.

Messrs. P. C. Henderson, Limited, also specialise in labour-saving runway plant, and have a fund of experience and knowledge which they will willingly place at the disposal of our readers.

Mr. H. H. Humphries, M.Inst.C.E., city surveyor, Birmingham, has prepared plans for the provision of slaughter-houses and lairages in Sherlock Street East at a cost of £25,000.

At last week's meeting of the Manchester Improvements and Buildings Committee some eighty plans were passed. Of these twenty-two referred to garages, four to houses which will be privately built, several to shops of considerable size, one to a big warehouse, and one to a new chocolate factory.

Messrs. Daniel Smith, Oakley & Garrard, land agents, surveyors, and auctioneers, of 4 and 5 Charles Street, St. James's Square, S.W., have entered into amalgamation with Messrs. H. & R. L. Cobb, of Rochester and 61 and 62 Lincoln's Inn Fields, W.C. 2, with whom they have been in friendly association for many years. The firm also inform us that they have taken into the new partnership Mr. E. B. Gillett, who has been their principal assistant for a considerable period. All the existing partners are remaining, and the same personal attention will be given to all matters as in the past.

General.

Mr. Mowbray A. Green, F.R.I.B.A., of Bath, informs us of his change of address from Prince's Buildings to 27 Queen Square, Bath, where all communications should be addressed in future.

Messrs. J. Hatchard-Smith & Son, F.R.I.B.A., have moved their offices to 11 Haymarket, S.W., the lease of their offices at 6 Duke Street, Adelphi, W.C., having expired on March 25.

A scheme to extend Spitalfields Market at a cost of £2,000,000 was approved last week by a Parliamentary Committee which considered the City Corporation Bill to enable the work to be carried out.

A company is being promoted, with a capital of £80,000, in £1 shares, to acquire a site in Suffolk Street, Birmingham, and to erect thereon a picture-house, to be known as the Orient Picture House. The registered office is 33 Newhall Street, Birmingham.

Subject to the approval of the Scottish Board of Health, the Special Committee of Glasgow Corporation on Housing and General Town Improvement have agreed to recommend the acceptance of a tender by Mr. Elphinstone Forrest for 100 houses in brick and 100 in concrete, amounting in all to £39,825 16s. 6d., for work in connection with the Sandy Hills housing scheme at Shettleston. It was reported that the Board of Health had approved an estimate by the Director of Housing for the construction of streets and sewers at Sandyhills by direct labour, amounting to £13,868 7s. Subject also to the approval of the Board, a tender for the electric lighting installation at Mosspark amounting to £8,933 1s. 5d. is recommended for acceptance to the extent of 750 houses, it being the lowest.

On Wednesday, March 15, a highly successful students' evening was held at the Exhibition of Architects' Working Drawings in the Galleries of the R.I.B.A., 9 Conduit Street, W. 1. Mr. A. J. Davis and Mr. C. H. Gage were present, and explained the special points of interest in the "Morning Post" building, while Mr. Dennington, representing Mr. Ralph Knott, gave information about the New County Hall. The students, of whom about eighty were present, appeared greatly interested in the drawings. Several important questions were discussed. An exhibition of this nature is of great educational value to students of all stages. The Board of Architectural Education have made arrangements for holding the exhibition annually, and work representative of all classes of architecture will be exhibited in the course of future years.

At the invitation of the Council of the Illuminating Engineering Society, the Council of the R.I.B.A. desire to inform their members that there will be a discussion on the subject of "The Lighting of Public Buildings," at 8 p.m., on Tuesday, March 28. The meeting will be held at the house of the Royal Society of Arts, 18 John Street, Adelphi. A summary of "Experimental Work and Results" will be presented by Messrs. J. W. T. Walsh, M.A., H. Buckley, B.Sc., and E. H. Rayner, D.Sc., of the National Physical Laboratory. Captain W. J. Liberty, Public Lighting Inspector to the City of London, will deal with various decorative interiors of town halls, &c. Any members who would care to take part in the discussion are asked to send their names to the Secretary, R.I.B.A., as soon as possible, and all members of the Royal Institute are cordially invited to be present.

We regret to record the death of Dr. P. MacGregor Chalmers, LL.D., F.S.A.Scot., the well-known Scottish archæologist and architect, which occurred with great suddenness on the 15th inst., while visiting his cousin, the Rev. Dr. R. H. Fisher, in Edinburgh. Dr. Chalmers, whose career as an architect commenced in 1887, was best known for his work in restoring ecclesiastical buildings in Scotland. Among the restorations for which he was responsible were those of Iona Cathedral, St. Andrew's Town Church, Melrose Abbey, and Gairluce Abbey. He had carried out church work in a score of Scottish towns, as well as designing many important domestic buildings. At the time of his death he had in hand the restoration of the Abbey of Paisley, Dalmeny Church, and Symington Church. Dr. Chalmers was a past President of the Glasgow Architectural Association, a Fellow of the Glasgow Institute of Architects, and a Fellow of the Society of Antiquaries of Scotland. In 1920 he received the honorary degree of Doctor of Laws from Glasgow University, and in the previous year was appointed an honorary member of St. Andrew's Society, Glasgow, "in recognition of his distinguished services to Scotland as an expert and loving restorer of great monuments of Scottish architecture." Among his publications are "St. Ninian's Candida Casa" and "A Scots Mediæval Architect."

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The Art of the Poster.

THE poster, being designed to attract, fails altogether of its mission if it catches the eye only to vex it. This statement is so obvious, so trite, that it would hardly bear repetition were it not that every station, every hoarding, bears witness of the failure of the advertiser to grasp a fact so elementary. Whence this failure, and what is its cure?

In the first place, the art of the poster is a recent thing, and its root idea, the placing before a buyer the object advertised, is perfectly sound, but it is by no means always understood that such art is bound to differ from the ordinary picture as widely as scene-painting does in another field. Merely to enlarge an easel picture is not to meet the difficulty; the aim and method must alike be different. As the scene-painter's art must carry through the theatre, so the poster artist's must face the yet more difficult conditions of daylight and wide spaces if it is to be satisfactory. Bold outlines, clear design, unmuddied colour, these are essential to success.

In the second place, this recent art has not had time to achieve a convention of its own, nor have advertisers realised that a convention is necessary. Yet such convention lies at the back of all successful decorative art, which is none the less original or admirable for following it. When the English school of alabaster workers was in full swing thousands of monuments following the same general idea were produced, equally effective whether seen in juxtaposition in an abbey or placed singly in a village church, equally good in treatment and original in detail, yet governed by one prevailing conception of monumental art. The poster's function is less dignified in purpose, but even more important in its results, since it is seen not by the few, but by the many, and any failure of taste or skill is therefore infinitely more offensive. When a broad governing principle has been evolved and accepted, this offence will be done away with, but that will only be when the makers of sauces, soaps, and patent medicines realise that the public cares. Countless travellers, seeing the disfigurement of fields beside a railway, have vowed never to purchase an article so advertised, and the increasing nuisance of motor advertisements at the entrance of our towns and villages has already led to talk of action by the motorists' unions.

Where one body alone is responsible for advertisements, as in the case of a railway, there is no excuse for failure. The Underground has proved that, and it remains for other railways, too often behindhand in this matter, to follow suit in the matter of their own advertisements at least.

The crux of the whole question is the hoarding, which belongs not to one body, but to all who care to rent a portion of its surface for the display of pictures of their wares, and it is precisely the hoarding which is most conspicuous, and therefore most important, for the public. Good and bad are mingled here: the enlarged easel picture, the bold conventionalised drawing, the blatant production of the food or soap maker; and the passer-by has no remedy. It is rash indeed for the advertiser to claim wider fields for his wares until he can show that he is prepared to use them well and wisely, and taste, alas, cannot be taught. The mystery is that manufacturers have no standard when it comes to the poster, and the very firm which, in the pages of "Punch" perhaps, will employ an admirable black-and-white artist to advertise their wares will disfigure a hoarding with advertisements of the same goods which have neither beauty, cleverness, nor charm to recommend them.

The immediate remedy is not easy to suggest. Convention is a matter of slow growth, and the pretty-picture idea is too deeply rooted to be readily weeded out. Recent experience of bureaucratic methods does not encourage a belief in or a desire for Committees of Taste, nor does the standard reached by the trade Board of Advisers in the matter of cinematographic films lead one to hope that a Board of Advertisers would necessarily bring about great results in the way of improving poster taste. The artist, too, unless he be in a very strong position, is largely at the mercy of his employer, whose business training rarely includes the principles of taste. It is really the public themselves who must bring about an improvement by showing an interest in the subject, a decided prepossession against a product badly or vulgarly advertised; and its best means of so doing lies in statements or letters in the Press, which, happily, has of late shown a disposition to resent the inflictions of the hoarding, which is all to the good. Once the principle that poster advertising is a serious form of decorative art is established and its principles formulated the way should be clear for better things, and the *argumentum ad pecuniam*, the undertaking by individuals not to buy objects improperly advertised, can be put into practice even now. Tell your grocer that you will not buy such and such a jam or pickle because of the way in which it is advertised, and it is in his interest to pass the information on; say that you are tempted to try such and such a thing because the advertisement is in such good taste, and you have encouraged the producer and the middleman. And till the world of poster art is in a sounder state than it is now, till the one good poster shall not be outraged by two bad neighbours, strive with all your might against those specious self-seekers who, under the pretext of making a "Brighter London," seek to foist their wares upon the public from lamp-posts and pillar-boxes.

It is nearly two hundred years since Dr. Johnson referred to advertising as a "trade now so near to perfection that it is not easy to propose any improvement." He is usually understood to refer primarily to newspaper advertisements, but we have to remember that the London of his day was full of posters in another shape, the signs, namely, hung out over shops and warehouses of every kind. And the parallel is the closer that such signs were often the work of very distinguished artists, who found a field for their works which disappeared when hanging signs were forbidden in the latter part of the eighteenth century, only to reappear when, a century later, the art of the poster came into being.

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Illustrations.

HOUSING SCHEME, FOLKESTONE, FOR SIR PHILIP SASSOON, Bart., M.P. EWART G. CULPIN and R. S. BOWERS, Architects.

Notes and Comments.

The New Royal Academician.

At a general assembly of Academicians and Associates of the Royal Academy of Arts Mr. Giles Gilbert Scott, A.R.A., architect, was elected a Royal Academician.

Mr. Gilbert Scott, who is only forty-two, is already famous as the architect of Liverpool Cathedral, which may be described as an outstanding example of modern Gothic design. He was just twenty-one when his design for the Cathedral was finished, and it was the one selected in competition. He has since modified his original plan of twin towers, substituting one great central tower, the massive effect of which is generally considered preferable, in view of the commanding position of the Cathedral, to the gracefulness of the two smaller towers. Among his other works may be mentioned the restoration of Chester Cathedral, the Church of the Annunciation at Bournemouth, and St. Paul's Church, Liverpool. He was elected A.R.A. in 1918, at the age of thirty-eight. His grandfather was A.R.A. at the age of forty-four, and was fifty before he was elected R.A.

We confidently expect that, as his span of life will probably be a long one, he will enrich contemporary architecture by other great works. One of his more recent commissions has been the design of a cathedral at Cairo, and it will be interesting to all to see how he approaches such a problem. The Royal Academy will be strengthened by the admission of one so young to its highest distinctions, and among his colleagues the election will be a very popular one.

Evils Bring their Remedies.

The most enthusiastic and easily pleased people will hardly contend that Cardiff is a beautiful town. Excepting for a remarkable group of public buildings in Cathays Park, the first of which were Messrs. Lanchester, Stewart & Rickard's Town Hall and Law Courts, and the great pile of Cardiff Castle, so ably restored by Burgess, Cardiff gives an impression of shoddiness and want of finish. St. Mary Street, the principal thoroughfare, is a fine street, lined for the most part by buildings of second, and even third, rate merit, and some of the smaller streets are even worse. At a recent meeting of the Public Works Committee one of the speakers, in commenting on a building recently erected, said it was disgraceful that such a building should be erected anywhere in Cardiff, and, after a rather amusing discussion of the usual character, it was decided to ask the City Engineer to report on the suggestion of making a new by-law to control elevational treatment and deal with frontages. Although there always must be a danger that the controlling authority may be exercised by those having insufficient æsthetic sense, we believe the effect of control would on the whole prove to be beneficial, and hope that the beginning made at Cardiff may prove to be the precursor of some definite action.

A Practical Suggestion.

The "Manchester Guardian" makes a very interesting and novel suggestion "On Seeing Pictures." A visit to an exhibition suggests that there are far too many pictures on view for any of them to be seen under favourable conditions. One would never think of asking people to read a number of books or parts of books in rotation, but at a picture gallery one looks at a number of pictures placed together under uncomfortable conditions. Most of us spend some time every day in restaurants or teashops, and why, suggests the writer, should not artists arrange to have their pictures exhibited in such places where they can be seen at leisure and a few at a time. If this were done people would certainly give them more attention than they often receive in a crowded gallery, and sales would often take place to those who had the opportunity of seeing a picture they liked and saw day after day for a short time. The suggestion sounds revolutionary, but has the advantage of appealing to one's common sense, while it might certainly lead to the greater popularisation of art.

Manchester Housing.

The Manchester Corporation has prepared a scheme, in accordance with the City Council's decision last December, for advancing money in certain circumstances to persons who desire to buy the houses in which they live. For the present the scheme will be confined to a hundred houses, and it applies only to houses built by private builders within the city of Manchester since December 7, 1921—the date of the City Council's resolution,—and of a market value, in the opinion of the City Council, of not more than £800. No one who is already the owner of a house to which the Small Dwellings Acquisition Act applies can be granted an advance. The amount advanced will be limited to 75 per cent. of the market value of the house, and in any case will not exceed £500. The repayment of advances, with interest, is required by equal half-yearly instalments within a maximum period of twenty years, but by giving a month's notice anyone may repay the balance of the principal, together with the interest due up to the date of repayment. We are glad to hear that this scheme for promoting private house ownership has now been finally adopted, as it seems founded on sound principles, and will, we hope, form a precedent for action elsewhere on similar lines.

Sir Alfred Mond on Slums.

Sir Alfred Mond truly says in a letter to the Press that the new housing schemes recently put forward do not touch or deal with the problem of the slums. This has two aspects—one directly connected with housing and the other bearing on public health. The existence of slums in our great towns is a source of danger to the whole community, and their removal, therefore, becomes a public duty, even if, as it often is, uneconomical. Sir Alfred has set aside £200,000 a year to assist public authorities in dealing with the subject, and we hold that such expenditure is justifiable and necessary. In London the areas to be dealt with include Tabard Street and Brady Street, which have been already commenced, and preparations are being made for taking in hand the Ware Street area. The schemes already in hand, including those confirmed in London and the provinces, involve some 4,000 houses, with an approximate population of 40,000 people.

"Modern Methods in Building Construction."

We shall continue this series of articles in our next week's issue, after which they will appear week by week as heretofore.

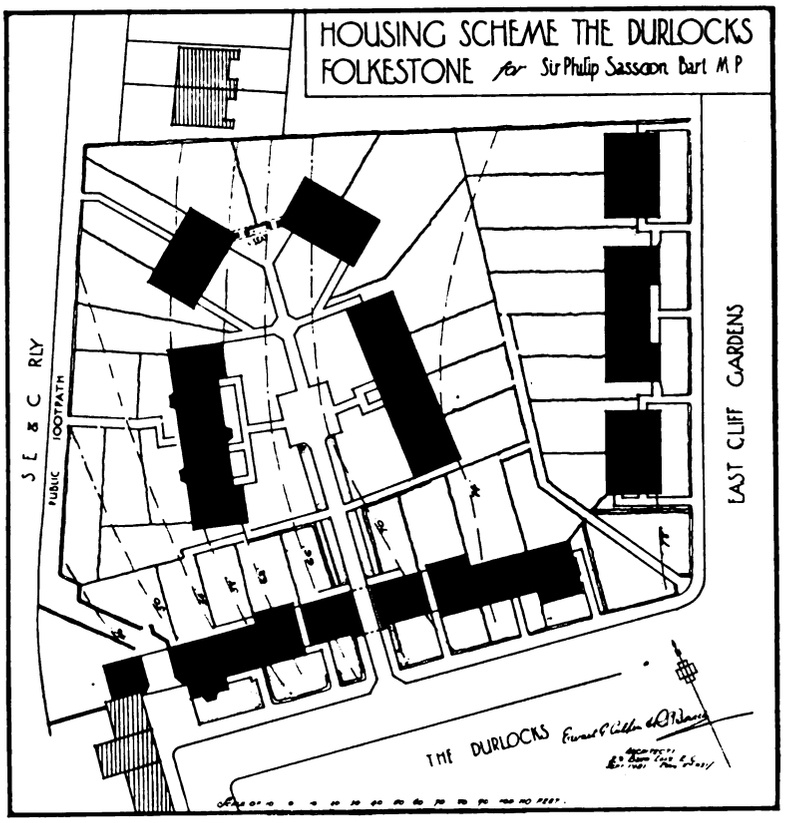
A Correction.

We are sorry that we wrongly attributed the Staircase at the Chatham Naval Barracks to Sir Aston Webb, P.R.A., our mistake being due to the fact that we had previously illustrated some Admiralty buildings by Sir Aston Webb and assumed that the staircase shown belonged to that building. The inscription under the illustration should have run "by the Admiralty," as it was designed by the official staff of that Department.

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Housing Scheme, the Durlocks, Folkestone.

(See Inset Illustrations.)



Every circumstance conspired to render the buildings at Folkestone illustrated in this issue immune from the charge of monotony so frequently levelled at State-aided housing schemes in these difficult times. Perched high on the East Cliff and overlooking the familiar harbour, the site is roughly rectangular and is bounded on the east and south by existing roads and on the west by a public right of way adjoining the railway. A reference to the block plan shows at a glance the lay-out adopted, which in itself calls for no particular comment until it is pointed out that from N.E. to S.W. the ground falls thirty-six feet. In order to obtain the requisite balance between the buildings flanking the new cul-de-sac, those on the right were planned as cottages with the first floor entirely in the roof, while those opposite consist of blocks of similar overall sizes with their roofs at the same level, but both storeys entirely below the eaves' level. Further, owing to an accentuation of the slope at this point it was found possible to convert basements (originally intended for storage purposes only) into flats approached from the right of way and lighted entirely from the backs and ends of the blocks.

The main interest of the scheme lies, however, in the front block, which is illustrated in some detail. It involved the demolition of some old property at the south-west corner of the site, and was not finally settled upon until the remainder of the scheme had been completed, including the top three cottages. Exclusive of these there are nine dwellings, which owing to the necessarily stepped levels are rather complicated, both as regards planning and the manner in which they fit together. The most exceptional case is that of the lowest dwelling of all, which is entered on the left of the lowered covered way. The front door gives access to a landing with one bedroom and w.c. at this level, and the stairs lead down to another bedroom and the garden door, and up to the main floor with the largest bedroom, combined scullery and bathroom, and the living-room, this last being built over the covered way, which is the only position in which a southern aspect could be secured. The manner in which the other dwellings—some flats, some two-storey cottages—are interlocked can best be gathered from the plans and the longitudinal section.

Externally it was endeavoured to carry on the traditions of the old fishing town, with a central innovation in the shape of a Dutch gable introduced at the wish of Sir Philip Sassoon, similar in form to those built by Mr. Herbert Baker at Lympne. The walls are of cavity construction in brick, part faced with smooth white plaster and part hung with tarred weather-boarding. Owing to the exposed situation the roofs are boarded, felted, counter-battened and tiled, old tiles being used as far as practicable. The casement windows are of wood with wood bars generally, but leaded glazing in plain rectangles where they occur in weather-boarded surfaces. Casements not easily accessible from the outside are hung on Parke's hinges to facilitate cleaning. All external joinery and ironwork is painted black.

The lower passage-way has oak beams, mainly salvage from the old buildings, that on the face being trussed up with heavy framed oak brackets—seen in one of the photographs. The floor over the beams in this case and wherever one occurs between two separate dwellings is of concrete reinforced with "Self-Sentering."

The scheme is a small one, comprising thirty-three dwellings, none having parlours; it includes a number of flats with only two bedrooms, which at the time were rather an innovation, but have proved very successful, as has also the endeavour to make the most of necessarily restricted space by forming the bathrooms as annexes to the sculleries, with folding doors standing back against the walls except when the bath is in use.

All the living rooms have "Registeroven" combination stoves with hot-water circulation to sink and bath. Gas cookers and electric light are installed throughout.

Much of the success of the project was due to the keen personal interest of Sir Philip Sassoon, not only in the foundation of the public utility society formed to promote the scheme, but in every detail of the actual work, while Mr. O. Marx, of Folkestone, proved an ideal contractor.

The work was carried out under Messrs. Ewart G. Culpin & R. S. Bowers, architects, of 27A Bush Lane, E.C., and Mr. F. W. Chas. Barker, surveyor, of the same address.

Mr. F. G. Troup, F.R.I.B.A., has prepared plans for a hospital which it is proposed to erect at Horsham at a cost of £13,000. Nearly that amount of money is in hand.

Messrs. Chapman & Jenkinson, architects, Sheffield, have been instructed by the Sheffield and District Branch of the British War Graves Association to endeavour to find a suitable site in Sheffield for the erection of a cenotaph to the memory of the men of that city who fell in the Great War.

The Minister of Health stated in the House of Commons last week that the actual cost of 91,864 houses finished on March 1, erected by local authorities under the Government's housing scheme and eligible for State assistance, could not yet be stated. Most of these houses were included in contracts not yet completed. The average all-in cost was estimated at £1,100. The number of houses the builders of which received grants from the State since January 1919 was 28,816. Houses not yet completed under this scheme numbered 13,000.

The Imperial War Graves Commission announce that the scheme for the Salonika battle exploits memorial has taken definite shape. The funds for this memorial were subscribed by the Army when in Macedonia, and the sum available is approximately £4,000. The memorial is to be erected at Colonial Hill, looking out on Lake Doiran, and in close proximity to one of the largest cemeteries. The memorial, which is to take the form of a massive pylon, about 40 ft. high, built of local material, has been designed by Sir Robert Lorimer, A.R.A., R.S.A., architect to the Commission for Italy, Macedonia, and Egypt.

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London Art Galleries.

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Last week was in the Galleries the week of the great water-colour Societies. The Royal Institute of Painters in Water Colours, which opened its one hundred and thirteenth exhibition on Saturday, March 18, and to the public on the Monday following, and the Royal Society of Painters in Water Colours, which opened its Summer Exhibition on the same days, and will close on May 27, mark the two most important fixtures of the early spring (even if that word seems a misnomer under existing climatic conditions) in this delightful branch of art.

Without bringing forward any markedly new departures from preceding exhibitions of this popular and old-established Society the work shown at the Royal Institute keeps a good level of achievement, though it cannot, in my judgment, be placed on the same level of technical handling of water-colours as that of the Royal Society in Pall Mall East, to which I shall come later. But even this comparison, which might suggest an unfavourable view, does not apply to some of the work shown here, and I should make one exception in the first room with Dudley Hardy's "After Rain," which is a brilliant piece of painting, with something of that clean-handling and atmospheric quality which we find in Russell Flint's best water-colour work. In the same room I should pick out Percy Lancaster's four paintings, notably, the composition and luminous quality in "The Fish Carts" and "The Lake"; while Frederic Whiting has a study of Bosham Creek, which shows that delightful corner of Sussex—Happy Bosham, as it is locally called—under rain-laden skies, and in figure-work W. B. Wollen handles cleverly a cavalry picket of "Wellington's Intelligence Staff," Henry Ryland has some charming nudes in "The Swan," W. E. Webster a good half-length of a girl in "Blue and Gold," and Mr. Collings, whose imagination seems to turn towards melodrama, follows up his "Corsair" of last spring with a lady who may be either the outraged heroine or the villainess, but is certainly out for business with a dagger.

Let us come next to the large South Gallery, always the most important. Here F. Matania commands our attention with his study of a Roman *calidarium*, "The Bath," which occupies a similar place of importance to his "Triclinium" of the 1920 Institute, though scarcely to my mind on the same level. The composition, however, and grouping are good, and the somewhat ample rotundities revealed in the forms of the lady bathers are carefully and accurately modelled. What one feels is that this laboured stippling treatment of the figure, which appears here in the work of Henry Ryland (just mentioned) and of Matania, whose ability cannot be questioned, if it does not preclude spontaneity and brilliancy does not often go with it. Quite another side of figure art appears in the next (West Room) in the "Halcyon Days," of Henry Thomas Jarman, and "The Descent from the Cross," of Wynne Apperley, with all the precision of drawing and freshness and intensity of sentiment of the Primitives.

Mr. Charles Simpson, in the same room, is admirable again this year in his impressions of bird life ("Wild Swans" and "Mallards-Twilight"), and Fred Taylor is successful in his scenic effects of the Russian Ballet, "Scheherazada" and in "The Rajah's Homecoming." In landscape Frank Spenlove-Spenlove ("L'Etude"), John H. Reid ("Haymakers-Whetstone"), J. R. K. Duff, a study of sheep coming into the rick-yard, T. C. Gotch and Terrick Williams, as well as Mr. Frank Dicksee, R.A., and the President himself, Sir David Murray, R.A., in "The Atonement of the Thorns," are to be mentioned. A painting to be not overlooked is "A Dream of Flanders," by Blamire Young; a sort of pictorial vision of some old city, such as Ghent or Bruges, in all the splendour of its architectural beauty of the Middle Ages.

The Summer Exhibition of the Royal Society of Painters in Water Colours (the 178th of this old Society) seems to me this year to reach a high level. I have frequently mentioned in these columns the work in this medium of Mr. Harry Watson, but I feel he has never sent anything more finely characteristic than his paintings now shown, especially his "On the Ledr, North Wales," with its brilliant handling of the water in the middle distance, and his "Morning." Fully on a level with these, though in a different manner, is Cecil A. Hunt's "Chalk Cliffs" with its fine spacing and sense of atmosphere; while Russell Flint is again successful in his "Old Marble," the play of stirring water around old marble columns, and his "One hundred windows—Florence"—giving all the mellow colour of the time-worn buildings, with their "cento fenestre," which have looked for centuries over Arno just below the Ponte Vecchio.

But perhaps the two most delightful paintings in this exhibition are those contributed by Charles Sims, R.A., under the titles of "Mother and Child"' and 'Sunlight.' The latter especially, showing (as both do) a young mother lying in bed with her naked baby sitting up beside her, is painted with a freshness of colour, a *joie de vivre* which is irresistible. I wish next to mention the work of a new Associate, I believe only recently elected, Mr. Henry Rushbury. He has four paintings here, but I find his "Quayside, Marseilles," the most significant, showing good design: while Mr. A. J. Munnings, who I think became an Associate last year, shows some sporting subjects under the title of "Horse Flies" and "Days of Yore." Moffat Lindler this year leaves Venice—save that he has one delightful study of the Salute church seen in the pearl-grey of dawn—and takes his subject from Holland in his finely handled "Rain Clouds on the Maas." The President, Mr. Hughes-Stanton, R.A., is well represented in his "Puy de Dom, France," with the splendid sweep of the stream in the foreground, and his view "From Slidon, Sussex"; and I was interested in a clever painting, reserved in colour, of "The approaching Storm," by Miss Alice Macallan Swan, and in the careful architectural drawing of T. M. Rooke's "Porch of the Angel Choir, Lincoln." William T. Wood, Lamorna Birch, Oliver Hall, J. C. Dollman, Robert Allan, Thorne-Waite, E. T. Holding, J. Walter West (in a vaporous, almost Turneresque, "Dream of Como"), and Reginald Smith contribute to the success of an exhibition, which is on such a good technical level throughout that criticism is difficult, though it is possible—as with Harry Watson and Charles Sims—to pick out what is novel or exceptionally brilliant.

Exhibitions coming on shortly or now in progress are: at the Grosvenor Galleries, which opens on Tuesday, March 28, with the "Colour Magazine" Exhibition of Modern Art; Messrs. P. and D. Colnaghi, with a collection of etchings and drypoints by James McBey, opening on Wednesday, March 29; the Independent Gallery, with drawings and paintings by modern British and French artists, from March 21 to April 13; Messrs. James Connell and Sons, 47 Old Bond Street, W., with original etchings and drypoints by S. Tushingham; Walker's Galleries, with water colours of India and Persia by Captain D. N. Morgan, M.C., from March 21 to April 3; and the Hampstead Art Gallery, with paintings by H. Davis Richter, R.I., sculpture by E. Whitney-Smith, R.B.S., and bead work by Mrs. Davis Richter, on view throughout March. I mentioned last week the exhibition at Goupil's Gallery of the Women's International Art Club, and hope to return to this later. "Sending-in" day for the Royal Academy for water colours was on Friday last, for oil paintings Saturday and Monday last, and for sculpture on Tuesday, March 28.

S. B.

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Hindeloopen: On the Zuider Zee.

By Hendrik van Wageningen.



Fig. 1.—HINDELOOPEN. From a Drawing by Charles G. Harper.

"Hindeloopen" is so remarkable, both for the lovers of the picturesque and those who care for characteristic remains, architectural and otherwise, that one hesitates to write in public about it, lest people should visit it in any numbers, so that it becomes a show-place, with vulgarisation as an inevitable result. This townlet, hidden away in a remote corner of Friesland, not easy to get at, with hardly any accommodation to stay at, difficult to get away from, is unique in the Netherlands. It is so for the reason that two periods of great material prosperity that had their far-reaching effects elsewhere—in the years between 1870 and 1880 and as a result of the Great War of 1914-1918—here had no effect. On neither occasion was money made at Hindeloopen, consequently people had not the wherewithal to pull the old things down and make ugly renovations. Thus it happens that Hindeloopen dozes on behind the sea-dike, much the same as it did a hundred years ago. In some books on Holland —for example the one by Edmondo de Amicis—published about 1875 but still one of the best—we read about extraordinary places like Broek-in-Waterland which, when visited at the present day, will be found to have nothing remarkable left. In other instances, as Urk, Marken, and Volendam, the quaintness is kept up on purpose to be run as a show for tourists. Hindeloopen has neither become commonplace, nor has anything so sordid entered into the considerations of its inhabitants.

When the slow train from Leeuwarden puts you down at the nearest railway station you find yourself landed nowhere in particular, among the green fields. After the train has puffed away it is the stillness of the place that strikes you: under the dome of heaven you are the only moving thing. There is nothing to indicate that you are anywhere near a town, except in the distance, peeping above the dike that ends the world westward, one little church tower of coquettish design. This wide expanse that you have all to yourself, with the still white clouds overhead, has something unreal: everything you have done and seen in your life seems long ago and far off, you feel an elated contentment with things in general come over you. With something of an explorer in you, and as there is nothing to prevent, you move in the direction of the trim little tower, standing out, the only landmark for miles and miles of horizon, above the interminable Zuider Zee dike. You pass through one or two gates, meant to keep the cows in bounds; as you draw near, the gates are opened by a child or a pauper who will thank you for a cent.

After half an hour's walk, on rounding a curve, you behold a scene that is pretty beyond imagination. At

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FIG. 2.—HINDELOOPEN: FROM THE ZUIDER ZEE. From a Drawing by CHARLES G. HARPER.

right angles to the road, on the left, there rises at a short distance out of the dewy meadows a long row of houses and out-buildings, mostly gabled, of colours matured with age, making a sky-line of charming irregularity, with the coquettish tower in the centre. A toy-town: no transition from country to town, but here the moist fields and there the gabled houses in a row, with the delicately-storeyed tower in the midst. Another gate, and you enter the town, having the little harbour on the right, and on the left, overlooking it, a shelter for the use of water-side characters, decorated with an ancient wood-carving, representing St. Peter catching fish. Another turn to the left brings you into the main street. It is narrow, the houses are low; on the right there are two or three streets and passages, narrower yet, leading over tiny bridges across tiny, crooked canals to another street, a little wider; and so on to yet another, and then you get to the sea-dike, where are the church, and the former town hall, now a museum. Everything is on the smallest scale, and you may call everything poor, but squalor there is none. It is an intricate maze of straggling houses, footpaths, wharves, bridges, canals, sheds, gardens, bleach-fields. You can easily walk over the whole area in ten minutes, and as there is hardly any traffic of vehicles the stillness of the fields beyond pervades the place, and is practically unbroken. Poor and small as we find everything, it yet gives one a delightful feeling of rest, because here at last is an habitation of men where the repulsive displays of commercialism are absent and the noises of folly silent. In Friesland, as elsewhere, much harm has been done by new buildings that, in obtrusive gaudiness, jar with the rural surroundings. It was Hindeloopen's good luck, as I said before, that this invasion of vulgarity and bad taste was kept away.

Here the characteristics of a small Dutch town are better preserved than anywhere else. Apart from the general aspect, you will not in other places find so many seventeenth- and eighteenth-century house fronts. And what is of particular interest, those fronts show features that make for a peculiarly local style. The ordinary stepped gable you will not see here; in its stead you find a gable that has a charm all its own as a result of two bold horizontal bands of which the bricks, alternately yellow and red, are laid in such a way as to produce a highly ornamental effect. Another feature, still preserved



FIG. 3.—A TYPICAL HOUSE-BACK AT HINDELOOPEN

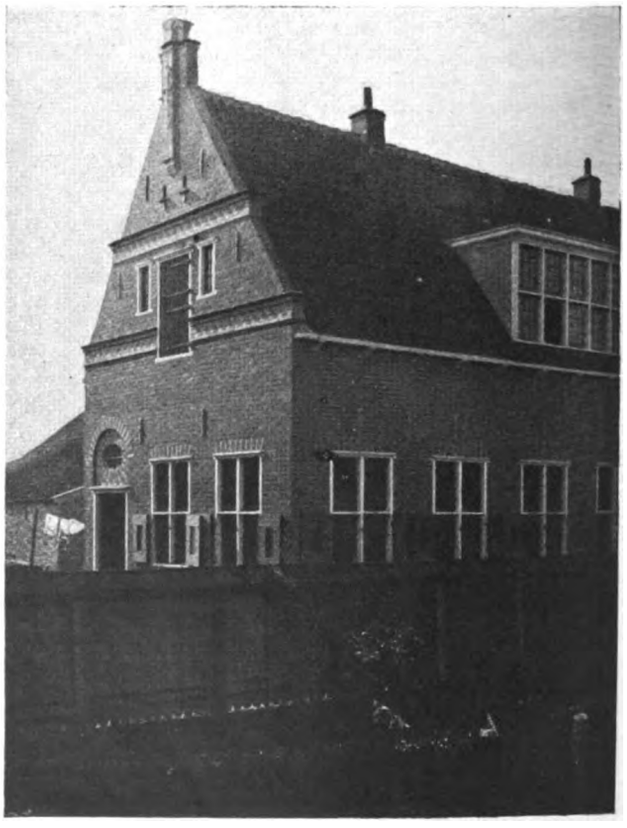


FIG. 4.—A NEW BUILDING ON OLD LINES AT HINDELOOPEN.

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FIG. 5.—DOORWAY AT HINDELOOPEN.
From a Drawing by CHARLES G. HARPER.

in a few houses, is a window made up of a square opening with, above it, two openings of the same height but half the width of the lower one, and semi-circular at the top. Again, you will see door-lintels carved in a charming late Gothic design, in which the initials of the owner together with the date are set forth. A few doors, also, show a surface that is effectually decorated by means of vertical ribs only.

Figure 3 shows a house-back that includes some of these features. The gable-bands are well preserved, a pair of semi-circular window openings may also be seen. In its disregard of symmetrical convention this back, badly kept as it is, has a special charm. It was a splendid idea of the owner of a workshop where replicas of old Hindeloopen objects are made, to build a new extension in the old style (fig. 4). The oval window over the door in its tympanum of yellow and red bricks, also visible on fig. 3, is a striking feature here, and the front affords a good idea of the charm of this purely local style. Fig. 5 shows an example of a carved door-lintel.

The museum at Hindeloopen gives an exhibition of the delightful things the townsfolk produced in their palmy days in the way of household furniture and handicraft of various kinds. It should be borne in mind that in former times the inhabitants of Hindeloopen cultivated a decorative art of their own, whereby the town came to stand apart from the rest of Friesland, and, indeed, the whole of the Netherlands. In the Friesian Museum at Leeuwarden two apartments, known as the Hindeloopen rooms, are decorated and furnished so as to be scrupulously exact reproductions of old Hindeloopen interiors. Here this style, primitive but full of character and good, albeit not refined, taste, may be best studied in its intimacy and homely opulence. The collection at Hindeloopen, though not a large one, occupying only three or four small rooms, serves the same purpose. The many striking ways in which the simple inhabitants of this hushed little sea-town were wont to embellish their surroundings makes one pause and consider how ugly our life has grown since their times. The windows of the museum look out on the Zuider Zee that lies there, grey, hazy, endless and still. A kind lady, who lives in the basement, is our custos and guide. When spoken to she answers in the long-drawn accent peculiar to those born near the sea. When she is silent the old Hindeloopen things resume their tale of long ago, and the ripple of the sea its tale of ever and for ever—a place hard to tear one's self away from.

The same applies to the little town as a whole. A person who has lived in greater towns and greater countries could not live here. After an hour, when the charm of the quaint and primitive surroundings is worn away, such a one begins to find Hindeloopen a frightful little hole. The race of kindly, shy people that live in these little houses and follow their modest pursuits as traders, peasants, and seafarers, have not much in common with modern man. One cannot help thinking that in the rounds of their simple lives they have solved what for him is still a problem, that they hear more that is good for them in their stillness than he does in his noise, and that they possess something of great value which he has lost.

Correspondence.

Unification and Registration.

To the Editor of THE ARCHITECT.

SIR,—Mr. Perks and his so-called Defence League have been so busy endeavouring to misrepresent the intentions of the Institute Unification Committee that they have not found time to make clear their attitude towards the question of registration by statute.

All their arguments are directed to proving the impossibility of it, the failure of attempt to secure it, and its uselessness if it were obtained. We in the provinces are in real earnest about it, and we want to know whether or not those who have advocated it in the past, including Messrs. Cross, Searles-Wood, Hubbard, and Perks, have resolved to give up the effort to secure it as an unprofitable task and, indeed, a hopeless one. Mr. Perks has stated that it will never be obtained, and he and others interpolate here and there in their speeches a remark to the effect that they favour registration, or are not opposed to it, apparently when they feel they have gone too far in the other direction.

If it is not taking up too much of your space, may I give quotations to show what I mean?

February 7.—A. W. S. Cross: "Our chances of obtaining statutory powers grow more remote each day."

"The extremely remote and shadow-like chance that in the dim and distant future, perhaps some paternal Government will kindly allow the Institute to manage the affairs of the whole architectural profession."

Mr. George Hubbard: "None of us are opposed to Registration."

"We remain to-day exactly as we were then (in 1908), without the ghost of a chance of getting a Bill through Parliament. The only chance of getting statutory powers hereafter is if we can show it is in the public interest. Parliament has already protected the public . . . and Parliament does not care a straw about the taste or style of your architecture, and it will not give statutory powers on these lines. Still we are, I think, all in favour of Registration."

Mr. S. Perks: "The Parliamentary agent has written still more emphatically that we have no case, and that we shall not get 'Registration.'"

Others followed in the same strain, utterly illogical in combination with the principle of "Registration first and then Unification."

Here, in the Provinces, we regard Unification as a step to Registration, as a step that is well worth effort and some sacrifice, and unless the opponents of it can show us the way to secure Registration without this preliminary step, we have no use for their propaganda.—Yours, &c.,

HERBERT T. BUCKLAND.

Norwich Union Chambers, Birmingham.
March 25, 1922.

Mr. Peter Anderson, J.P., chairman of Messrs. P. and W. Anderson, Limited, died on the 21st inst. at Auchterarder, in his 75th year. He came to Glasgow from Auchterarder nearly fifty years ago as an operative. He is survived by his wife and one son, Sir John Anderson, Bart., who was included in the King's Birthday honours list in June 1920. Sir John, who is the managing-director of the firm, received his baronetcy for public services.

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State v. Private Enterprise in House Building.

ADVANTAGE was taken of the submission of "Votes on Account" at this week's meeting of the London County Council to initiate a debate on housing policy, in the course of which intervention by the Government was severely criticised.

The Finance Committee submitted a vote of slightly over nine million pounds to cover the period between the end of the present financial year and the anticipated date of passing the annual estimates, the money to be spent on the general services of the Council.

Miss Susan Lawrence moved that it be referred to the Finance and Housing Committees to provide an additional £100,000 for the erection of houses.

Commenting on this proposal, Mr. Emil Davies said that contractors who were not allowed to build houses for the people of this country were not going to starve, but even so he objected to millions of pounds being lent to France and other European countries for house-building purposes, which could well be utilised at home for the same purpose. The method adopted by the Government of slowing down municipal housing schemes was tantamount to subsidising idleness by doles, instead of subsidising work.

Mr. Edwin Evans, who, apart from his membership of the Council, is a prominent London property agent, and chairman of the Property Owners' Protection Association, said that, notwithstanding cheaper money and the lower cost of building at the present moment, it was still impossible to obtain anything like economic rents. For all that, he believed the time had passed when it would be possible to let so-called working-class houses at 32s. a week. On the building already undertaken they were committed to a loss of something like six millions a year for sixty years. Nobody knew what the ultimate loss on the housing schemes would be. If it were now decided to build another five thousand houses, he supposed there would be another "corner" in raw materials, and possibly in wages as well. (Oh, oh!) Private enterprise had hitherto carried out ninety-five per cent. of the building of houses for the working classes. The allegation was often made that they were "jerry-built," but many of them would compare well with houses erected by the State. £1,750 for the erection of a small house was wasteful expenditure. The money paid in "doles" should be used in building houses. The worst landlord it was possible to have was the State landlord. The erection of the better-class houses should be handed over to the contractors, who had done it for years, and who would produce houses at least twenty-five per cent. cheaper than the State or any municipality. He warned the Council against extending their housing schemes until prices were lower.

Mr. Herbert Morrison asserted that the policy of the Housing Committee was to discourage municipal housing, in order that private enterprise might be predominant. Every borough council in London had an army of sanitary inspectors "chasing around" to look after the houses erected by contractors. If the State had been responsible for their erection the inspectors could be dismissed. The proposal was that houses built for the better type of workmen—which were generally remunerative—should be left to private builders and property owners, but that slum clearance should be imposed upon the ratepayers.

Mr. Gatti, Chairman of the Finance Committee, pointed out that, even if the reference back were carried, it would be ineffective, because the Council was unable to modify its housing policy on the passage of a vote on account.

The motion to refer back was defeated on a division by twenty-four votes to eighty-two.

Mr. Arthur J. Murgatroyd has taken Mr. James Hembrow, A.R.I.B.A., into partnership. The firm will be carried on under the old style of Mills & Murgatroyd, practising at 23 Strutt Street, Manchester, as architects and surveyors.

The Society of Architects First Half-yearly Design Competition (1922).

Nineteen, or about 50 per cent. of the provisional entrants, submitted designs in the preliminary test, which closed on Monday, March 20, the subject being "The Entrance Gates for the grounds of a Country House." The drawings were numbered as received, and the Jury of Assessors, Messrs. Percy B. Tubbs, L. Sylvester Sullivan, H. M. Robertson, and Thomas Wallis, after long and careful examination of the designs, selected the authors of the drawings marked 3, 4, 5, 6, 9, 10, 11, 13, 16, and 18 to compete in Part II. of the competition. These were afterwards identified as follows: Licentiates: Harold Scott Dalby, of Chester (13); Oswald Howell Green, of Truro (16); Roland Hulbert Shrewsbury, of Eccles (3). Students: Harold Anderson, of Canterbury (11); Stuart Bedford, of Hove (5); Alan Joseph Biddulph, of Birmingham (6); Colin Arthur Browne, of Birkenhead (10); Leonard Keith Dyer, of Portsmouth (4); Edmund Kenneth Rainford, of Hoylake (9); Cecil George Vickerman, of Huddersfield (18).

The final result of the competition, which is of the value of £40, will be published in the "Journal" in due course.

The dome which surmounted the Dublin Custom House has now been taken down, as it was found to be unsafe. The stonework will not be available for reconstruction, as it was so severely scorched during the great fire as to render it practically useless.

Messrs. S. Rentell & Co., Ltd., 36 Maiden Lane, W.C., have published a 1s. booklet under the title of "Central Station Voltages and Charges throughout the United Kingdom." The tables, which seem very complete, give information under the following heads: town; station owned by or current from; chief (or resident) engineer; voltage of supply, system, cycles if alternating; and the price per unit for light, heating and cooking, power and vehicles.

Smethwick Town Council are considering a scheme for extending and re-organising their gas works, at a cost of £180,000. The Council have also received a number of tenders for the erection of fifty-two houses. The highest price for one type of house was £1,047, and the lowest for the same type less than £500. Last week it was decided that, subject to the approval of the Ministry of Health and to satisfactory terms of contract being arranged, tenders be accepted for sixteen type A houses, twelve type B, and twenty-four type C, at a sum not exceeding £25,000.

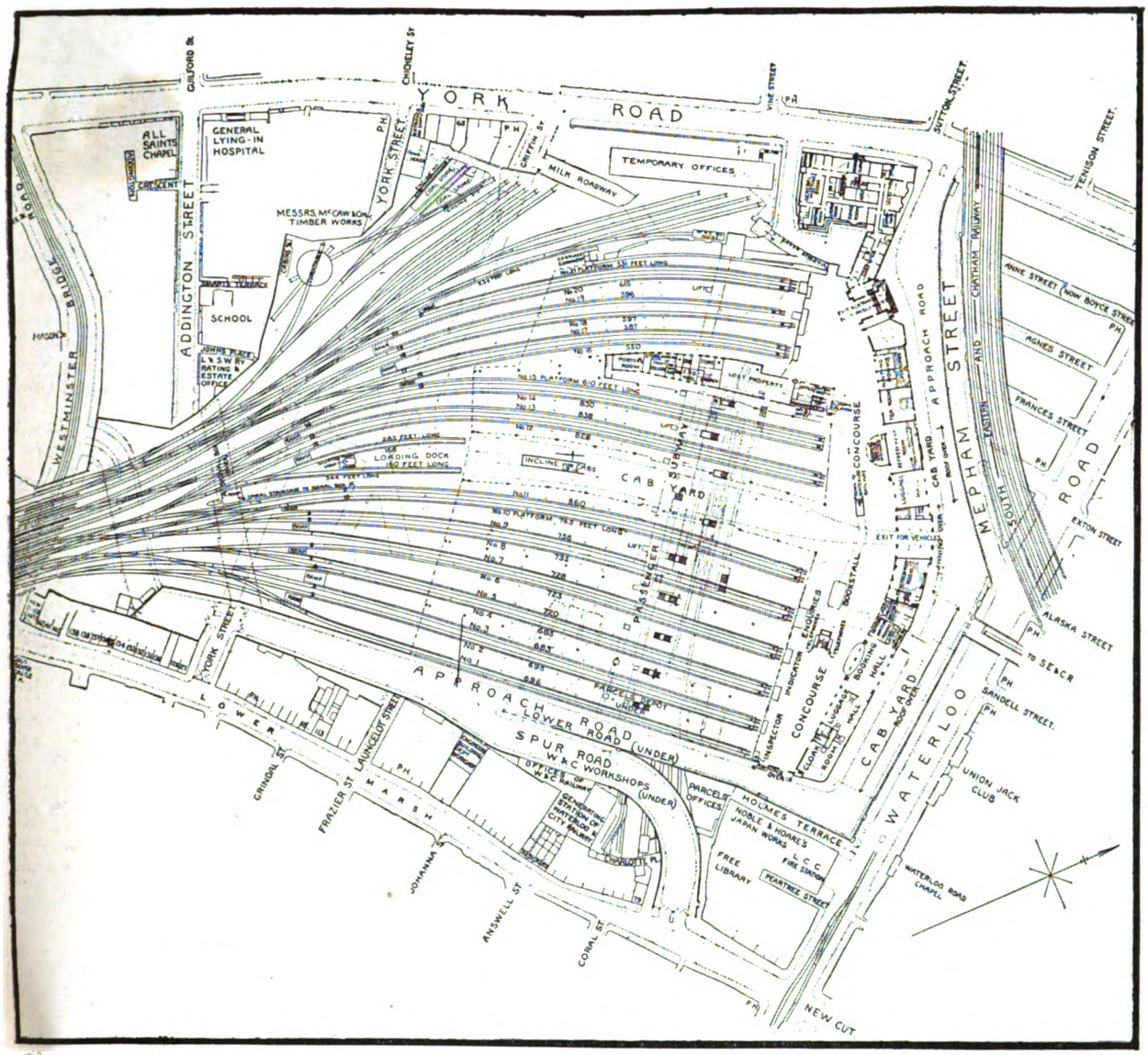
The British Portland Cement Manufacturers, Ltd., will hold their eleventh ordinary general meeting at River Plate House, Finsbury Circus, E.C., at noon to-day, the 31st inst. According to the annual report, the profit for the year of £479,762 compares with £558,839 in the previous year. A final dividend of 5 per cent., less income tax, is recommended on the ordinary shares, making an ordinary dividend of 10 per cent. for the year. The sum of £150,000 has been placed to the General Depreciation Reserve, being the same amount as last year. A balance of £186,627 is carried forward.

At the monthly meeting of the Incorporated Church Building Society, held at 7 Dean's Yard, Westminster Abbey, on the 16th inst., grants were made towards enlarging, reseating, or repairing the churches at Beeston-next-Mileham, St. Mary, Norfolk, £50; Blackburn, The Saviour, £175; Kilburn, St. Augustine, £75; Kingsclere Woodlands, St. Paul, Hants, £25; Platt, St. Mary, Kent, £30; and Pontypool, St. James, £100. Grants were also made towards purchasing the mission church of St. Thomas, Dukinfield, Cheshire, £20; and towards building St. Barnabas Mission Church, Tuffley, Gloucester, £75. Various grants were paid for works completed. The sum of £689 was also paid towards repairs to thirty-three other churches. The Society is dependent upon voluntary support, and appeals for substantial assistance.

The Unfair Competition Bureau of the Paint and Varnish Industries in the United States has issued the following public notice to painters and finishers: "As a further protection to painters, finishers, and salesmen, and as a means of preventing any recurrence of a practice which has been forbidden by the Federal Government, this Bureau offers a reward of one thousand ($1,000.00) to any painter, finisher, or other person for proof, satisfactory to said Bureau, that any representative of any paint or varnish manufacturer has, since December 15, 1921, secretly paid to any painter or finisher, any money as a reward for having influenced, or as an inducement to influence the sale of paint, varnish, shellac, stain, or filler to his employer. This offer is good until December 31, 1922."

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The New Waterloo Station.



In the absence of the King, who was indisposed, the ceremony of opening the new railway station at Waterloo was performed on the 21st inst. by the Queen.

The work in connection with the reconstruction and enlargement, which has been in progress for several years, is now practically completed, and Waterloo Station of to-day may be considered to rank as the most extensive and up-to-date railway terminus in Europe.

Nothing now remains of the original station except the arches upon which the structure has been built.

Waterloo Station was opened in 1848. Previous to that date the terminus of the railway was situated at Nine Elms, from which place trains commenced to run to Woking in 1838. It had originally three platforms, but was not intended to be a terminal station, the idea being to extend city-wards; this proposed extension did not mature, and the old Waterloo was gradually added to, until at last it became a source of bewilderment to the travelling public and a heavy responsibility for the officials of the London and South Western Railway.

Parliamentary powers were obtained in 1899 for the acquisition of the additional land required for a complete reconstruction, but before a commencement could be made with the station work it was necessary to re-house those people disturbed by the acquisition of the property. This in itself was no mean task, bearing in mind the area to be dealt with was densely populated, in fact, housing accommodation had to be provided for no less than 1,750 persons.

A feature of the reconstructed station is the concourse, or circulating area, which extends across the station, and gives access to each of the twenty-one platforms, also to the booking offices, luggage and cloak rooms, refreshment, dining, and tea rooms, waiting and toilet rooms for ladies and gentlemen, including baths, &c., so that as the old Waterloo Station was a by-word for confusion, the new station may be considered as one for ordered simplicity.

The concourse and platforms are protected by a lofty roof mostly glazed, with specially designed ventilation, which admits of smoke and steam from the locomotives freely and speedily passing through the openings in the roof.

Platforms Nos. 1 to 15 are each connected by a short flight of steps, midway in their length, to a subway which gives ready access to the City and the Bakerloo Tube Railways. Immediately below this is another subway connected to the platforms above by electric lifts for dealing with parcels traffic. The absence of trolleys on the concourse conveying parcels is a great convenience to the travelling public.

With a frontage also to the concourse and over the station offices, before enumerated, are the General Offices, constructed with all the modern improvements in heating, ventilation, electric lifts, &c., the skeleton of the building is steel framing encased with Portland stone and brick.

Nor has the comfort of the staff employed on the station been neglected. Between platforms Nos. 15 and 16 is a building in which will be found the station-master's office and lost property office, nearest the concourse, beyond which are the time and pay offices, mess rooms, etc., for guards, motormen, ticket examiners, porters, and others, while on the upper floor is a spacious dining-room with up-to-date kitchen and other offices attached for the benefit of the clerical staff.

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VICTORY ARCH. A. W. SZLUMPER, C.B.E., M.Inst.C.E., Chief Engineer. J. R. SCOTT Architect.

The station now occupies an area of 24½ acres, of which 10 acres are covered with roofing.

On an average 1,200 trains arrive and depart from the station every twenty-four hours; on special occasions the number has reached 1,370.

Advantage was taken of the work of reconstruction on the north side of the station to introduce a memorial to the employees of the railway company who gave their lives for King and country in the Great War, and it will be admitted that this memorial is one of the most effective in the kingdom. It is incorporated in the northern entrance to the station, and may be termed the "Victory Arch." The frontage is slightly set back from the general line, and approached by a handsome flight of stone steps is a finely proportioned but massive arch in Portland stone with a span of 28 feet. The sculptural decorations are three groups, two of which are semi-circular in composition, placed on the pylons either side of the arch. The one on the left, representing War, 1914, has a central figure of Bellona, Goddess of War, wild and distraught, clad in scaled armour, astride the world, with flaming torch and naked sword dealing death and destruction. The other, on the right, representing Peace, 1919, has for its motive a figure of Peace seated and enthroned upon the earth, and holding a palm branch and a small figure of winged victory, symbolical of Peace with Victory, bringing abundance and contentment, whilst commerce and liberal arts flourish; the panel round the arch being decorated with war trophies, and discs giving the names of the different countries where our men have fought, the whole surmounted and finished by the central group of Britannia, seated and triumphant, holding aloft the sacred torch of Liberty to her own greatness and glory, and for the guidance of her children and children's children, and the benefit of mankind in general. Under the arch, on either side on bronze tablets, the names of the 585 fallen heroes are inscribed.

The general effect of this "Victory Arch" gives one the impression of correct proportion, and reflects credit on all concerned, especially the architect, Mr. J. R. Scott, son of the late Andrew Robb Scott, architect, Edinburgh, and assistant to the late John Belcher, R.A.

To the left of the "Victory Arch" appear the strongly marked architectural features of the general façade with its fine columns and the pleasing impression of studied proportion.

The office building in the centre portion consists of five floors. The ground floor, which is platform level, is entirely given over for the use of the general public, consists of waiting-room, booking hall, refreshment buffets, and tearoom. One of the chief features of the station is the new buffet decorated in marble and plaster with mahogany counter and back fittings, which is 79 feet long and 39 feet wide The walls are panelled

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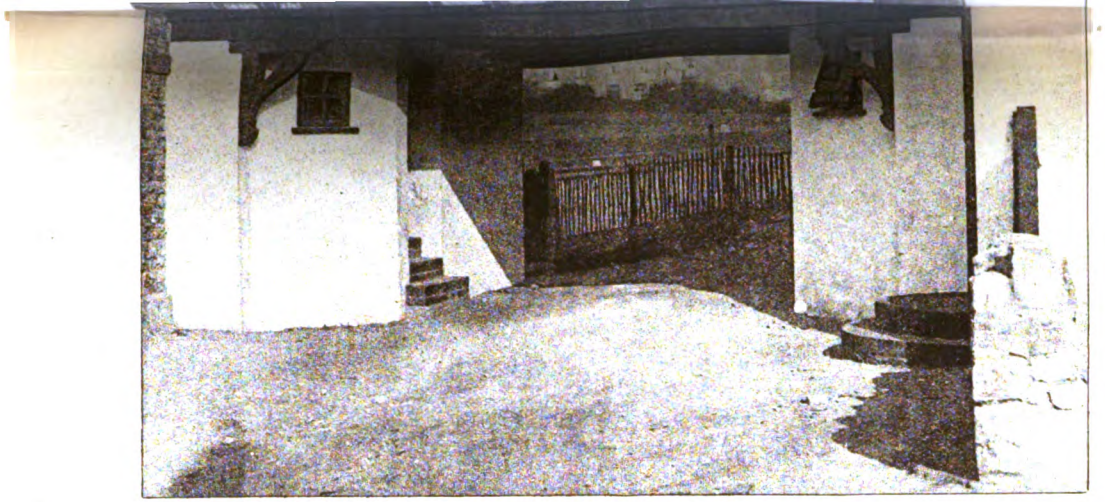
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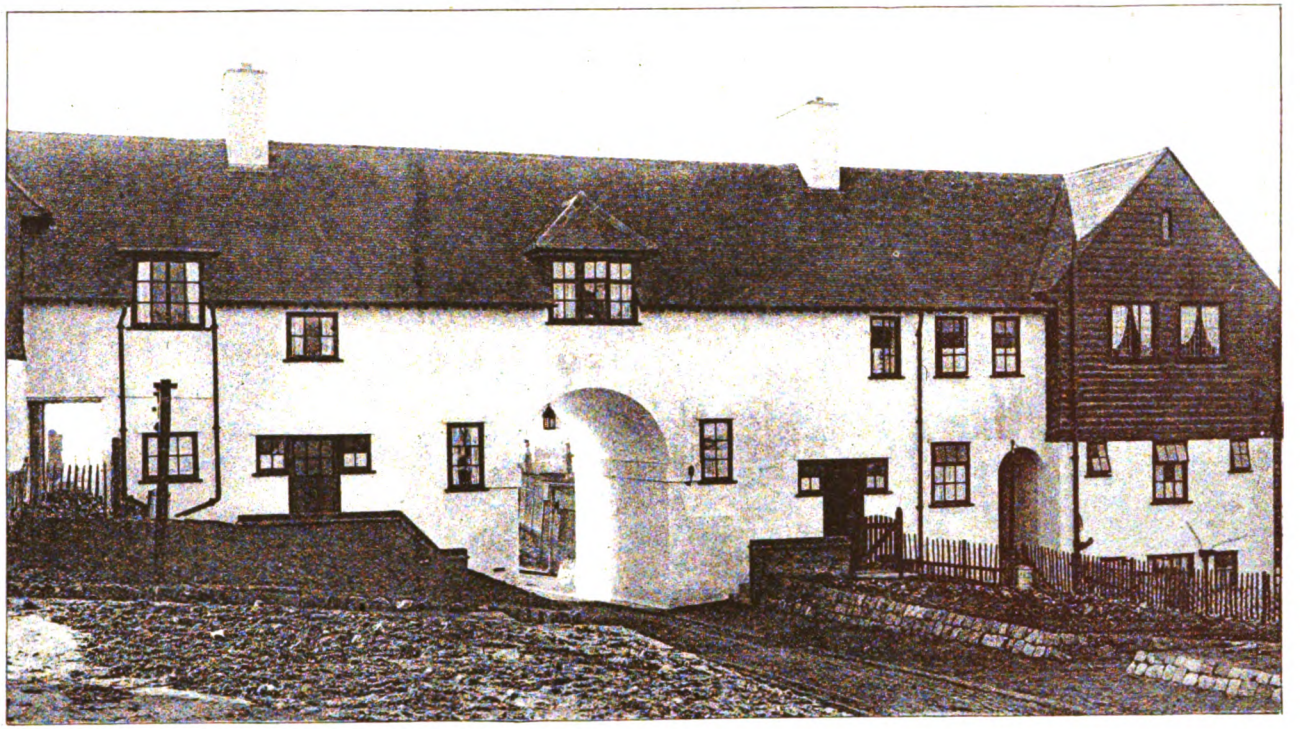
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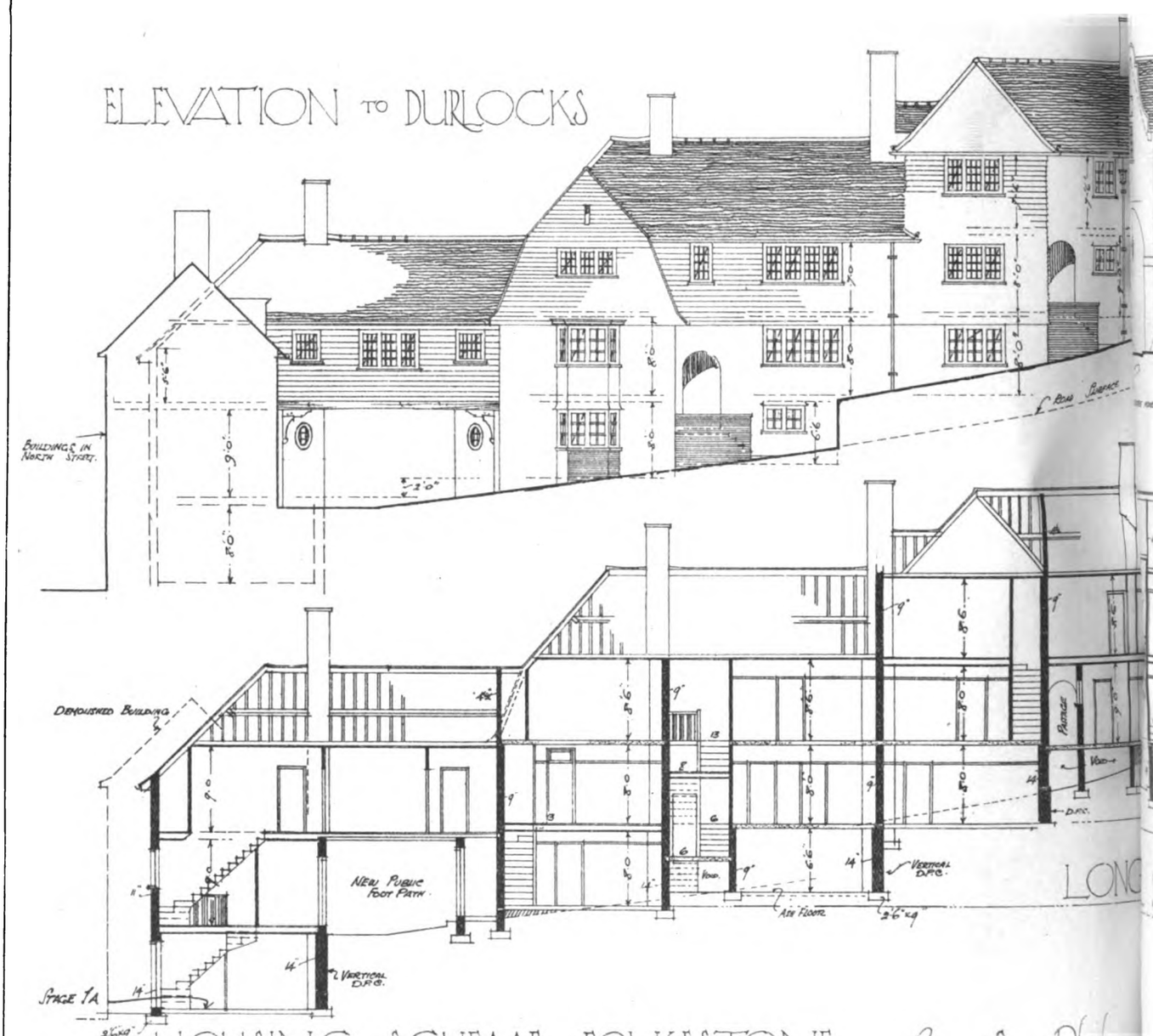
HOUSING SCHEME, FOLKESTONE. FOR SIR PHILIP SASSOON, BART., M.P.

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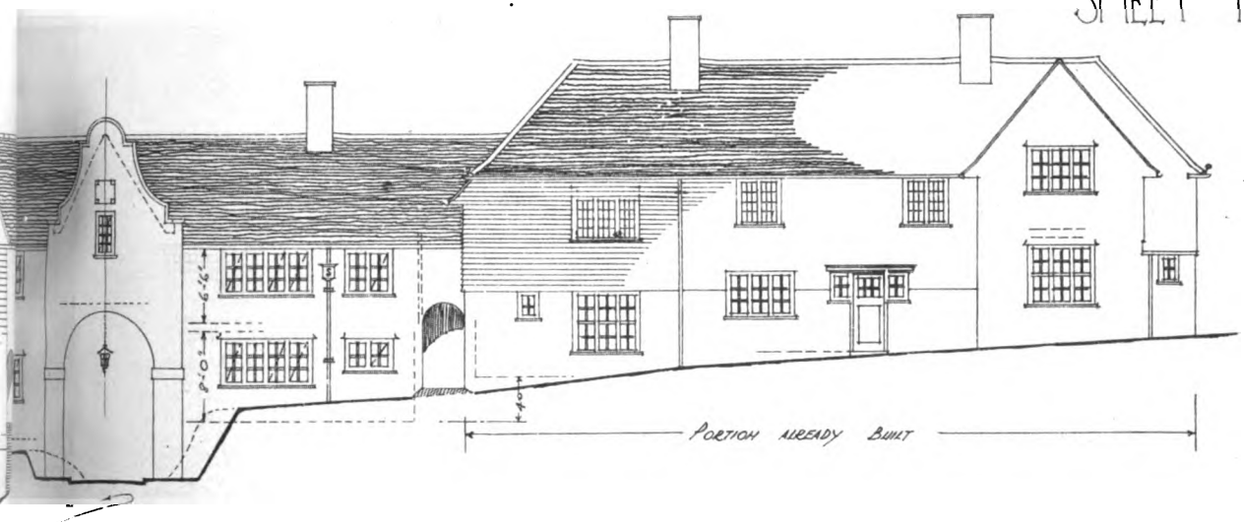
HOUSING SCHEME FOLKESTONE for Sir. Philip
Completion of Front Block.

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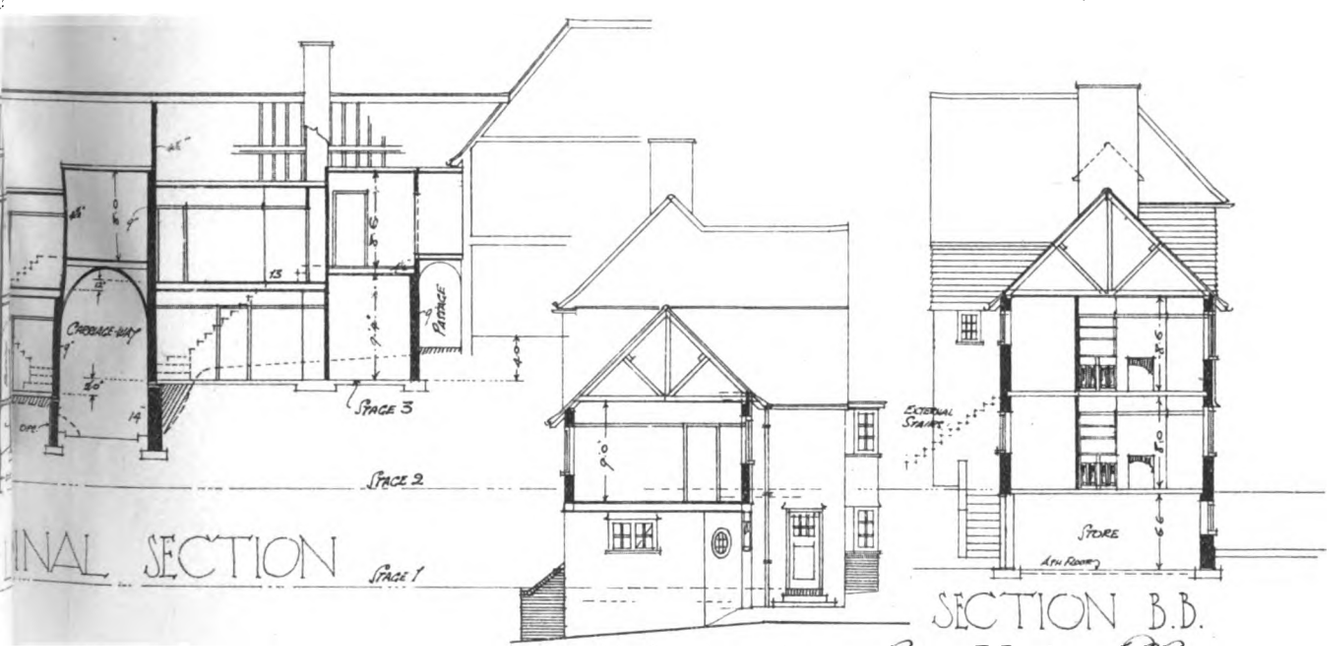
MARCH 31st, 1922.

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DRIVE CENTRE MOVED 2'-0" WEST.



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SECTION A.A.

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ARCHITECTS
2/3 BUSH LANE, CANNON ST., E.C.
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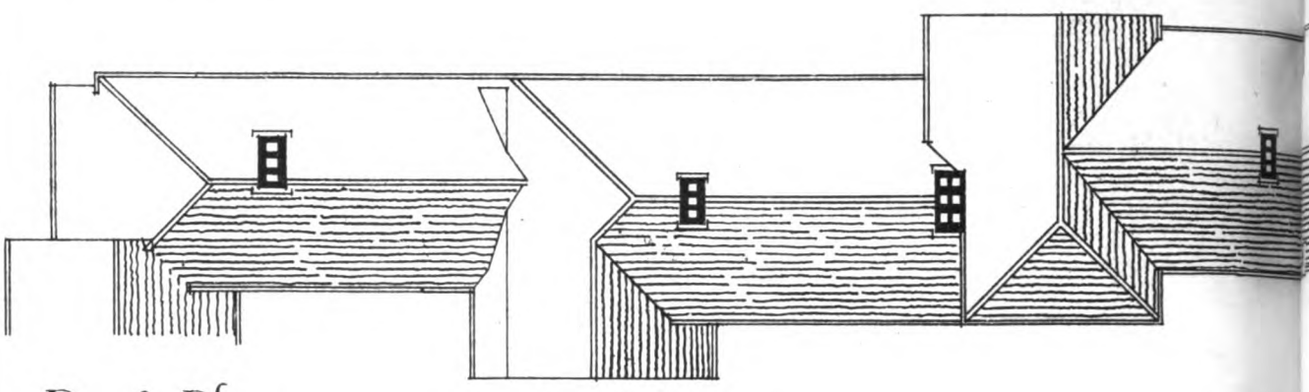
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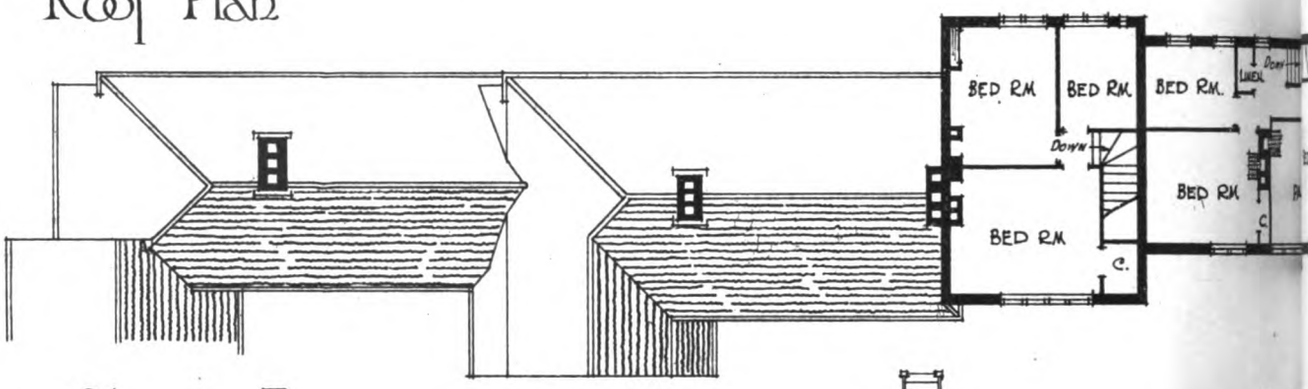
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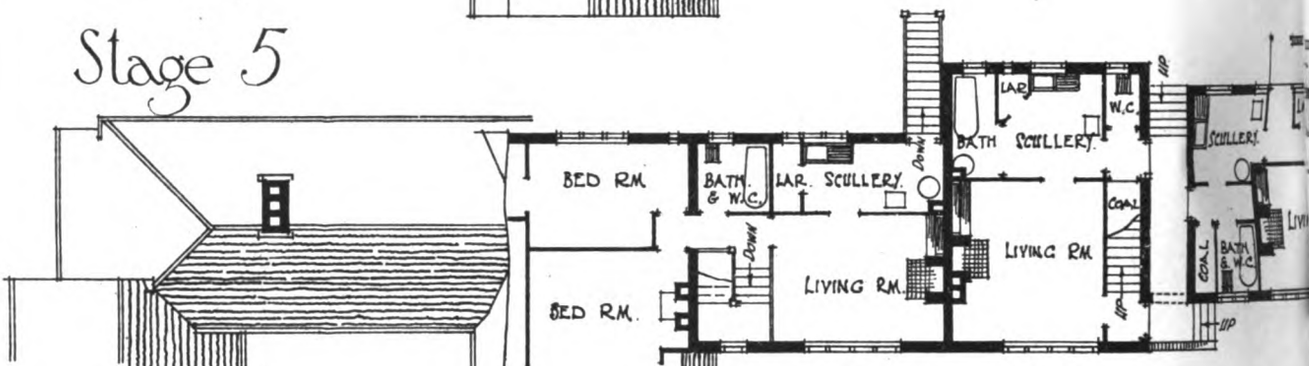
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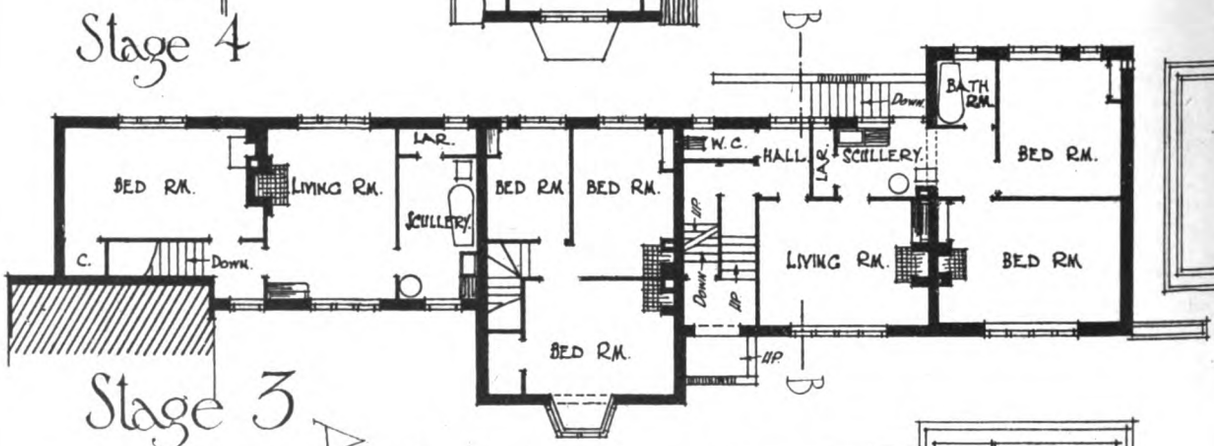
Roof Plan



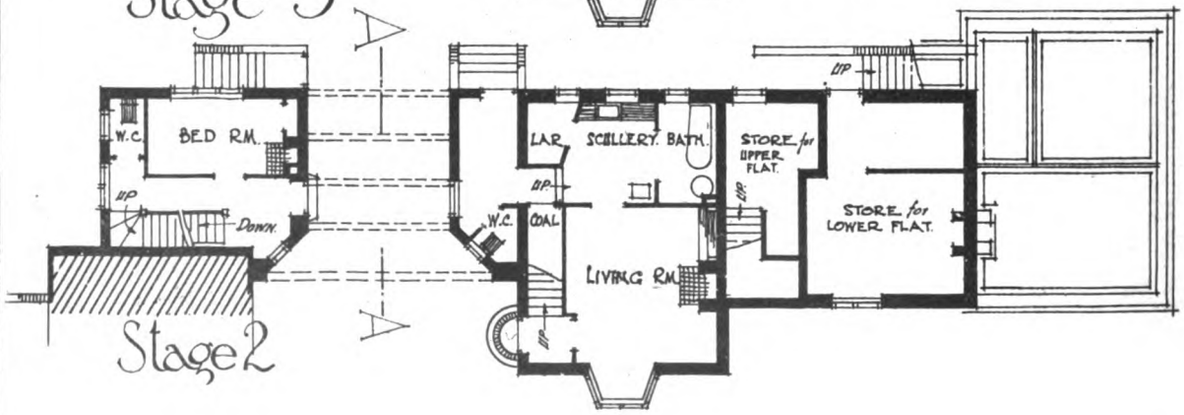
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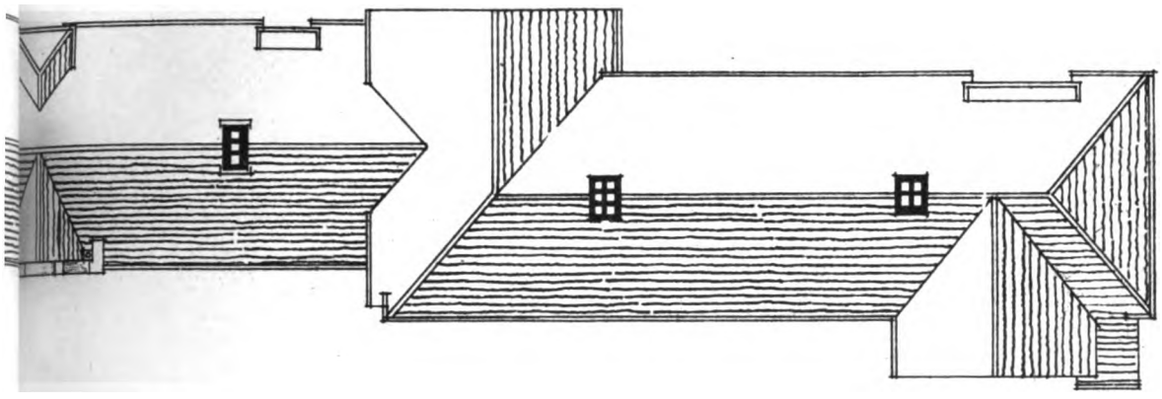


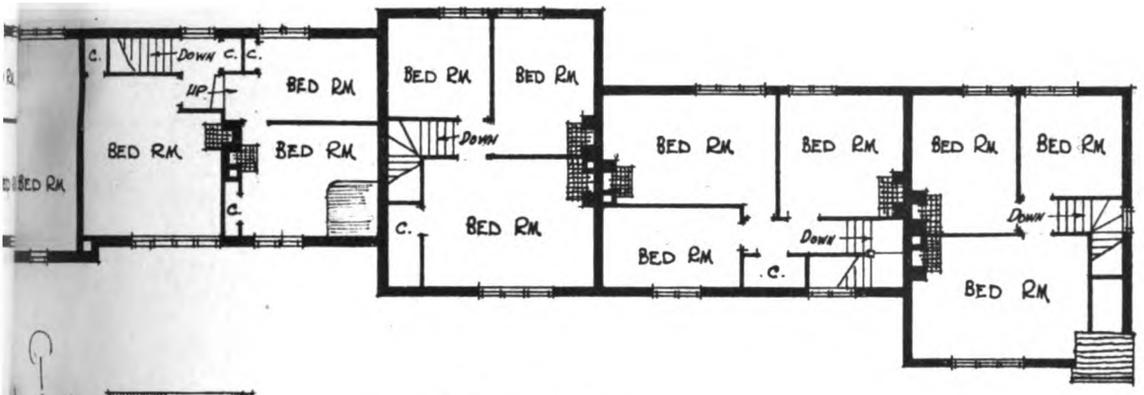
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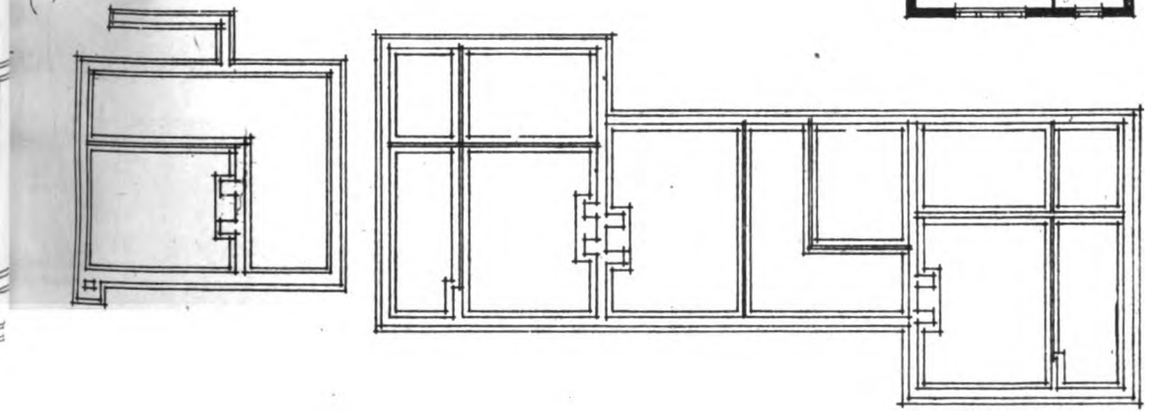
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HOUSING SCHEME · THE DURLOCKS FOLKESTONE for Sir Philip Sassoon · Bart. M.P.

SCALE OF FEET
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Ewart G. Culpin & R. T. Bowles
ARCHITECTS
27a Bath Lane E.C.
Oct 1921. Dwg No

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GENERAL VIEW. A. W. SZLUMPER, C.B.E., M.Inst.C.E., Chief Engineer. J. R. SCOTT, Architect.

in marble to the height of 9 feet with Greek cipollino and statuary in bays of 11 feet, columns being introduced with rouge marble set in upper panels. The centre piers are fluted in sienna with supporting columns in Greek cipollino, these having bronze caps and bases, the flooring being laid with squares of cipollino and statuary. The upper portion of the walls being in plaster with Grinling Gibbons ornament. Only light refreshments are served in this buffet.

On the first floor are situated the oak dining-room and white tea-rooms with passenger lift for use of the public, and the other floors are for the use of the various administrative departments.

The site was at one time a marsh. In the reconstruction no heavy loads were imposed upon the existing piers or arches, but were taken down independently to the hard gravel, or in some cases to the London clay; this meant excavation to depths varying between 15 and 25 feet. Water, the great foe of engineering works, was encountered in considerable volume, but was successfully dealt with, and very few claims had to be met for disturbance to adjoining properties due to pumping operations.

Beneath the general station level there is the parcels depôt, with connection by means of lifts to the platforms above, as previously mentioned; there are also workshops, and many of the arches are occupied as wine vaults.



AN INTERNAL VIEW. A. W. SZLUMPER, C.B E., M.Inst.C.E., Chief Engineer. J R. SCOTT, Architect

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Still farther down we come to the City Railway, with repair shops, shunting yard, and two large lifts capable of lifting or lowering the coaches forming the trains or trucks of coal or other necessaries.

It may be mentioned that the work of the reconstruction of the station has been carried out both under and over and the traffic maintained; for instance, to form the entrance from Westminster Bridge Road two spans of the brick arches with the intermediate pier were removed and steelwork substituted, and this under a busy section where the trains entered and left the station. New roofing was constructed over the old, and heavy girders put together while traffic continued beneath, and those responsible for carrying out the work are proud to be able to say that no passenger has been injured or a train held up.

This gigantic work has been designed and carried out under the direction of the chief engineers of the company —viz., the late Mr. J. W. Jacomb Hood, who died early in 1914, and since then by Mr. Alfred W. Szlumper, C.B.E., M.Inst.C.E. The resident engineer throughout has been Mr. R. D. Hawes, A.M.Inst.C.E., assistant engineer for new works.

Messrs. Perry & Co. (Bow), Ltd., the contractors, have surely set up a new record, for during the whole of the period of construction not one life has been lost out of the thousands of men that have been employed. The magnitude of the work is greatly enhanced when one considers the little dislocation of traffic that has occurred while the work has been in progress.

There were various sub-contracts:—

The Birmingham Guild, Ltd., carried out the memorial arches in cast iron, with cast-bronze clock case and ornaments; the cast-bronze memorial tablets, with engraved and vitreous enamel filled inscription and names; and the wrought- and cast-iron gateways to the platforms.

Veronese Co., Ranelagh Gardens, S.W., have been engaged continuously during the past fourteen years on the general plastering throughout the station. The very considerable fibrous plasterwork, with the exception of that in the tea-room and buffet, has also been carried out by them. The firm are mainly engaged at the moment on the main staircase.

Kinnear patent steel rolling shutters, for which Arthur L. Gibson, Radnor Works, Strawberry Vale, Twickenham, is the sole manufacturer, have been used exclusively, and are fitted to the parcels offices, escalator, electrical sub-station, &c. The London and South-Western Railway Co. have extensively introduced Kinnear shutters on many of their other stations.

The whole of the glazing of the roof, over half a million feet superficial, was executed by W. Edgcumbe Rendle & Co., Ltd., 5 Victoria Street, S.W. 1. In the course of the work 1,000 tons of glass and 60 miles of metal glazing bars were used. It is interesting to note that Mr. W. E. Rendle, the founder of the firm in 1871, was the inventor of fixing glass without putty; and that since that time the company has fixed glass roofs all over the world, entailing the introduction of 5,000 miles of glazing bars.

Amongst the other sub-contractors were:—

Sculpture on memorial arch, &c., Messrs. Farmer & Brindley.

Fireproof shutters, Arthur L. Gibson & Co.

Decorative plasterwork to tea-room and buffet, H. H. Martyn & Co., Cheltenham.

Marble work to new buffet, Fenning & Co., Ltd.

Glazing, Luxfer Prism Co.

General plasterwork, Veronese Co.

Bar counter, Longley & Co.

Electrical signs on station, London Sandblast Co.

Roofing, Head, Wrightson & Co., Ltd.

Plans have been approved by Worksop Urban Council for a new bank in Bridge Street, Worksop, for the Yorkshire Penny Bank. A site has also been secured on which it is intended to erect, in Bridge Street, a building for the London Joint Stock and Midland Counties Bank.

Sir Charles Ruthen and the Profession.

We have received the following copies of letters received from and written to Sir Charles Ruthen with regard to the controversy raised by Sir Charles's address to the Society of Architects.

[COPY.]

Ministry of Health, Whitehall,
March 16, 1922.

DEAR MR. PRESIDENT,—Referring to the resolutions passed by the Council of the Royal Institute of British Architects dealing with my address to the Society of Architects, you may have seen in the Press my reply to a letter from the Secretary of the National Housing and Town Planning Council, in which I pointed out that some parts of my address had been entirely misunderstood, and explained the extent to which I intended my criticism of the part taken by architects in the Government housing scheme to apply. You will believe that it was with great regret that I found my words interpreted as throwing upon the architectural profession a general degree of responsibility, and subjecting them to an extent of criticism never intended by me.

The criticism which I had intended to make was naturally not made without cause; there are unfortunately clear evidences that the Government did not receive in certain cases the help which they were entitled to expect from some of the architects engaged on housing schemes, and much time was occupied by the official staffs in eliminating needless and extravagant provisions.

I am very willing to meet the Council of the Royal Institute of British Architects if that is their wish; I could do so if invited on March 20 or at the following meeting; but in view of the explanation which has already been published, and my reiterated desire that architects may continue to be associated with housing work, perhaps you may feel, as I do, that no good purpose will be served by embarking on a discussion of the extent to which certain architects proved to be inexperienced in a special class of work, and thus added a quota to the already inflated cost which had to be contended with. In any case I need scarcely assure you, as Director-General of Housing, of my recognition that in many cases architects loyally assisted the Government in their struggle for economy, and of my entire goodwill towards the members of the Institute and the architectural profession generally. Yours faithfully,

(Signed) CHARLES T. RUTHEN.

Paul Waterhouse, Esq., P.R.I.B.A.

[COPY.]

March 22, 1922.

DEAR SIR,—The letter which you addressed to the President, R.I.B.A., under date March 16, 1922, was laid before the Council on the 20th instant, and by resolution then passed I was directed to say in reply:

1. That in thanking you for your assurance that parts of your address had been misunderstood, the Council specially welcomes your explanation that you had no intention of "throwing upon the architectural profession a general degree of responsibility."

2. That they receive with satisfaction your recognition of loyal assistance rendered by many members of the profession in the national struggle for economy.

3. That while naturally pledged to continue to deal, as in the past, with all questions requiring disciplinary action within the ranks of their own members, they concur in considering that a further discussion on the lines to which you refer is unnecessary. Faithfully yours,

(Signed) IAN MACALISTER,
Secretary.

Sir Charles Ruthen, O.B.E.

The Selborne Society has arranged an eight days' visit to Winchester at Easter.

A new Allied Society of the R.I.B.A., which was formed in 1921 for the advancement of the art of architecture and the protection of the profession in the County of Norfolk, was admitted by the Council of the Royal Institute in November 1921. Mr. Edward Boardman, F.R.I.B.A., of Norwich, was elected the first President of the Association, and the new body had its inaugural function in the form of a banquet in Norwich on Friday, March 24, 1922. The Council of the Association were exceedingly fortunate in obtaining the presence of the President of the Royal Academy. The sympathetic interest which Sir Aston Webb has taken in the foundation of this new professional body is very keenly appreciated by the architects of East Anglia.

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The Architectural Association.

An ordinary general meeting of the Architectural Asssociation was held on Monday, the 27th inst., at 34-35 Bedford Square, W.C., Mr. W. G. Newton, M.A., President, in the chair.

The preliminary business, after the usual informal supper, included the announcement of six nominations for membership, the election of eight members, and one reinstatement (Mr. Charles Perks, 1893). The President stated that the total of £20,000 Debenture issue had practically been subscribed, the balance being only a few hundreds. Their efforts would therefore now be concentrated on the Endowment Fund.

Mr. Gilbert Bayes then gave a short talk on "The Treatment of Sculpture in Architecture." He was, he said, handicapped by the fact that he did not know what theories were at the moment held at the A.A. If he had been speaking at the Art Workers' Guild he would know exactly what to expect. For instance, it was held there that every man ought to do his own carving, irrespective of the fact that the one or two men who have practised that rule have failed to demonstrate its advantages. The sculptor certainly got more tired and bored than if someone else did the heavy work for him. Another theory at the Guild was that the sculptor should carve straight into the stone, and that to prepare preliminary models was damnation. He was quite sure an architect wanted to see a model first. Again, it was claimed at the Guild that everything should be carved *in situ*—failing thereby to realise that a sculptor working on a building saw less of his work than when working anywhere else, for the reason that he was standing almost in a hole made up of scaffolding, guard rail, and so on. The average critic would declare that there were no sculptors in this country to-day, except — or —, mentioning a name or two of people whom they of the craft might not even call sculptors. His own theory was that sculptors were very much more influenced in their work by their surroundings than was generally realised. Exhibitions were another enormous factor. An exhibition was a thoroughly artificial fact which had both virtues and big risks. Sculptors might almost be divided into two classes: one being those who work for, and are affected by, exhibitions, and the other those who work for, and are affected by, their surroundings. Rodin was a typical exhibition sculptor; it was impossible to recall any work of his which seemed to be affected by the architectural necessities of the case; each piece seemed to need curtaining off by itself. Rodin was a very great man, and one could welcome work of that sort; but he was an extremely risky man to found a school on. Typical of the other class were the Serbian sculptors, Mestrovic and his companion, Rosandic, both of whom were affected by the school of modern German architecture, which was of a very heavy and almost primitive sort. Unfortunately the public collections in this country were not well represented in any of these three men, who have all done very much better work than we possess. In the Viennese school (to which the two Serbians belong) the treatment was deliberately archaic. To sculptors of this country it did not come nearly as natural to work in that manner. Influenced as they were by the predominant classic, they could hardly escape being classic themselves. Sculptors put classic trimmings on their figures just as any architect puts them to-day on his buildings. One noticed that Princess Mary's wedding cake was classic; it was a pity the architect's name did not appear on it! This classic tradition in England has had an immense power over the sculpture. It had taken classic when it had reached its zenith. Sculptors, in trying to live on the same heights, had taken themselves so seriously as to forget they might introduce a little light humour or the grotesque. Another thing which the classic tradition brought to the fore was the production of figures from life which were remarkably clever and technically perfect, but formed no integral part of the building. That attitude was an extremely momentous thing. The classic buildings of Greece were erected to keep out as much light and sun as possible; in this country the opposite requirements rule. Efforts had been made to render this great City of London a white city, forgetful of the fact that though it might have been made a coloured one it could never be a white. He failed to understand why they should not see more colour in the streets. Colour had unquestionably been used in classical times. Perhaps the spirit of Gothic, with its individual thought, was nearer to us than that of the perfect classic. A great deal was being made at the present time of individualistic ideas. This was due to a certain extent to the holding of exhibitions, where the cry is always for individualistic thought and outlook. The Gothic Revival of last century lapsed to a large extent because there was not enough breaking away, and the old traditions were slavishly followed. Tradition was up to a point the most important thing art had; unfortunately it had been broken in this country. Tradition was the only root on which they could build, but it was the new spurs on the tree which would carry the fruit. There must be something of the present grafted on to it if it is to endure. The live figure had too long done duty for sculpture. As a reaction some people admire things for the sole reason that they are not like nature and resemble nothing. Work of the latter sort has been compared to the sculpture of the Pacific Islanders, but that was an insult to the Islanders. He did not know if the audience felt that sculpture ought to be more severe and less of the live figure. If they did, it was up to them as architects to produce more severe buildings, as then the right sculpture would be forthcoming. Assyrian sculpture could not be properly placed on the Parthenon, or the friezes from the Parthenon on Assyrian monuments. Architects were to an immense extent responsible for what sculptors do, and the future of the art lay in their hands. He hoped they would use their opportunities wisely.

Discussion.

Mr. Francis Hooper, in proposing a vote of thanks, said he believed the more frequently other artists met with architects the better for all. There are two instances of a happy setting for sculpture in London which impressed him immensely. One was the Gladstone Monument, which stood in front of St. Clements Danes Church in the Strand and with an oblique view of the Law Courts in the background. Here the environment embodied little groups of figures which convey characteristics of that statesman, and the whole thing tells a story in such a fashion one wanted to go round the monument and examine the different parts. The other instance was in the south aisle of Westminster Abbey, where Alfred Gilbert's monument to Henry Fawcett, the blind Postmaster-General, stands; this, too, has little figures around it which arouse lively interest. In both cases the environment added immensely to the effect. He hoped all young architects would give earnest thought to this question of environment.

Mr. Gilbert Jenkins regretted architects got so few chances of employing sculpture in buildings. Referring to what Mr. Bayes had said about colour, he would remark it was a very very difficult thing in London to treat an exterior in colour. The further one went south the more colour one got in life. It seemed as if sculpture and painting are now going through the phases through which architecture went before the War. People at that time said "we want something different to anything that has gone before," and there arose l'Art Nouveau. But it did not last. If a tradition, whether Gothic or Classic, was built up they would go further than if something of their own was built up. In the middle of last century Gothic was fairly tried out on modern buildings, and proved a failure.

Mr. Walter Gilbert obtained permission to quote some extracts from a letter he recently received from Mr. Alfred Gilbert. The sculptor had said "The evidence of too little literary study is painfully evident in nearly

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all modern art, especially in that of sculpture. No amount of the most perfect technique can perfectly satisfy if it signifies no more than dexterity. Art surely has a higher and nobler mission than that of setting the world agape at monkey tricks or jugglers' dexterity. The practice of reading fine literary works develops the powers of absorption of all that is good and discrimination as to what is to be avoided, and moreover awakens to exercise the inventive faculties. In addition to entirely endorsing your view that it is the spirit and not merely the surface which is to be sought in each of two mighty offsprings of a still mightier parent, to ensure the result of their blending being worthy of that common and sublime origin. I would humbly submit that it is possibly beyond all human power to teach communities or individuals how to find that spirit. *Poeta nascitur, non fit.*" Sculpture and architecture—the concrete material and the abstract thought—were, said the speaker, one great truth combining the body and the soul. The realisation of that was the beginning of the emotion which must govern expression.

Mr. T. L. Dale suggested the cause of the rarity of the employment of sculpture usually lay with the client, and not with the architects, who are sympathetic. Clients think Corinthian columns support the building, though in reality the building more probably supports the columns. Surely no one to-day was interested in classical trimmings! Did anyone get pleasure out of these columns? To support his belief that the answer was in the negative, he would mention two buildings close together in London. One was the fine automobile showrooms in Piccadilly designed by Mr. Curtis Green, and the other was a little scent shop in Bond Street by Mr. C. F. A. Voysey. If he asked which gave the greater pleasure, he believed everybody would agree they got more out of the scent shop, with its cement surface and perfectly plain walls, with their carving and colour, than out of the other, with its very fine specimens of the Corinthian order. The audience might not be so Gothically inclined as Mr. Bayes appeared to be; they might have to tackle their problems more directly, as Sir John Burnet did in the Kodak Building, Kingsway, which was little more than a steel cage for clerks. The idea that the logical solution of modern problems was a city enriched with sculpture and carving seemed something new, and full of the brightest possibilities. The suggestion that colour was unsuitable for a northern climate was a preposterous one, and contradictory to history. The sense of colour had only become lost in this country since industrial revolution.

Mr. R. R. Goulden contended it was inaccurate to talk of "following a tradition." Of course, in a measure it was impossible to avoid doing so; but really one was much more apt to copy superficial forms than to work in the spirit. The word "mannerism" might be more truthfully employed than "style."

Mr. Manning Robertson thought the real bother in cities was the soot which covered any colour on buildings. Once the smoke had been rid of they could turn their attention to colour and sculpture.

Mr. L. Sylvester Sullivan could not see why the capitals of classical columns might not be carved differently to the accepted forms. As used at present they might just as well be moulded in terra cotta, instead of elaborately cut by hand. Classical forms were being used in place of Gothic, because our modern forms of construction are vertical and horizontal, as was the feeling in classic work.

Mr. F. R. Hiorns and Mr. T. S. Tait also spoke. Mr. W. G. Newton, in putting the vote of thanks from the chair, deplored the tameness of the modern architectural carver's work, which entirely lacked the fury and vigour of attack that was so necessary in any form of sculpture. It was only in that way there could grow a fine complement to the architecture they were slowly and tentatively endeavouring to produce. That architecture meets the needs of the day, and at the same time symbolises the developments growing out of those needs. Painters and sculptors could help by pushing them forward along that path.

Mr. Gilbert Bayes having replied, the meeting terminated.

Royal Institute of British Architects.

The following notes are from the Minutes of the Council meeting held on March 20:—

R.I.B.A. Medal for Schools of Architecture.—On the recommendation of the Board of Architectural Education it was decided that a medal be given by the Royal Institute for the best set of drawings submitted at the annual exhibition by post-graduate students exempted from the final examination.

Street Architecture Award.—The Council approved for publication the conditions for the annual award of a medal for the best street frontage completed during the previous twelve months within a radius of four miles from Charing Cross. The conditions will be issued forthwith. The jury for the award consists of: The Earl of Crawford and Balcarres (Hon. F.), Chairman; Sir Aston Webb (F.), P.R.A., Past-President, R.I.B.A.; Mr Paul Waterhouse, P.R.I.B.A.; Sir Reginald Blomfield, R.A., Past-President, R.I.B.A.; Mr. E. Guy Dawber, Vice-President, R.I.B.A.

Durham War Memorial.—The Council decided to support the resolution passed by the Council of the Northern Architectural Association protesting against the proposed erection of the Durham War Memorial in the centre of the Palace Green at Durham.

Sand-lime Bricks.—Mr. H. D. Searles-Wood, Vice-President, was appointed to represent the Royal Institute on the Sectional Committee formed by the British Engineering Standards Association to prepare a British Standard Specification for sand-lime bricks.

Professional Classes Aid Council.—Mr. George Hubbard (F.) was reappointed to represent the Royal Institute on the Professional Classes Aid Council.

The Royal Gold Medal.—The Right Hon. Sir Frederick Ponsonby, the Keeper of the Privy Purse, informed the Council that His Majesty the King had approved the award of the Royal Gold Medal for Architecture to Mr. Thomas Hastings, of New York.

Forthcoming Events.

Monday, April 3.—Royal Institute of British Architects. Meeting at 9 Conduit Street, W. Paper by Mr. S. C. Ramsey, F.R.I.B.A., entitled "London Clubs." 8 p.m.

Tuesday, April 4.—Institution of Civil Engineers. Meeting at Great George Street, Westminster. Paper by Sir Robert A. Hadfield, Bart., D.Sc., entitled "Corrosion of Ferrous Metals." 6 p.m.

Wednesday, April 5.—Royal Society of Arts. Meeting at John Street, Adelphi. Paper by Professor E. R. Mathews entitled "Sea Encroachment and its Prevention." 8 p.m.

Royal Archæological Institute. Meeting in the apartments of the Society of Antiquaries, Burlington House, Piccadilly, W. Paper by Dr. Philip Nelson, M.D., F.S.A., entitled "Some Unpublished Examples of English Alabasters." 4.30 p.m.

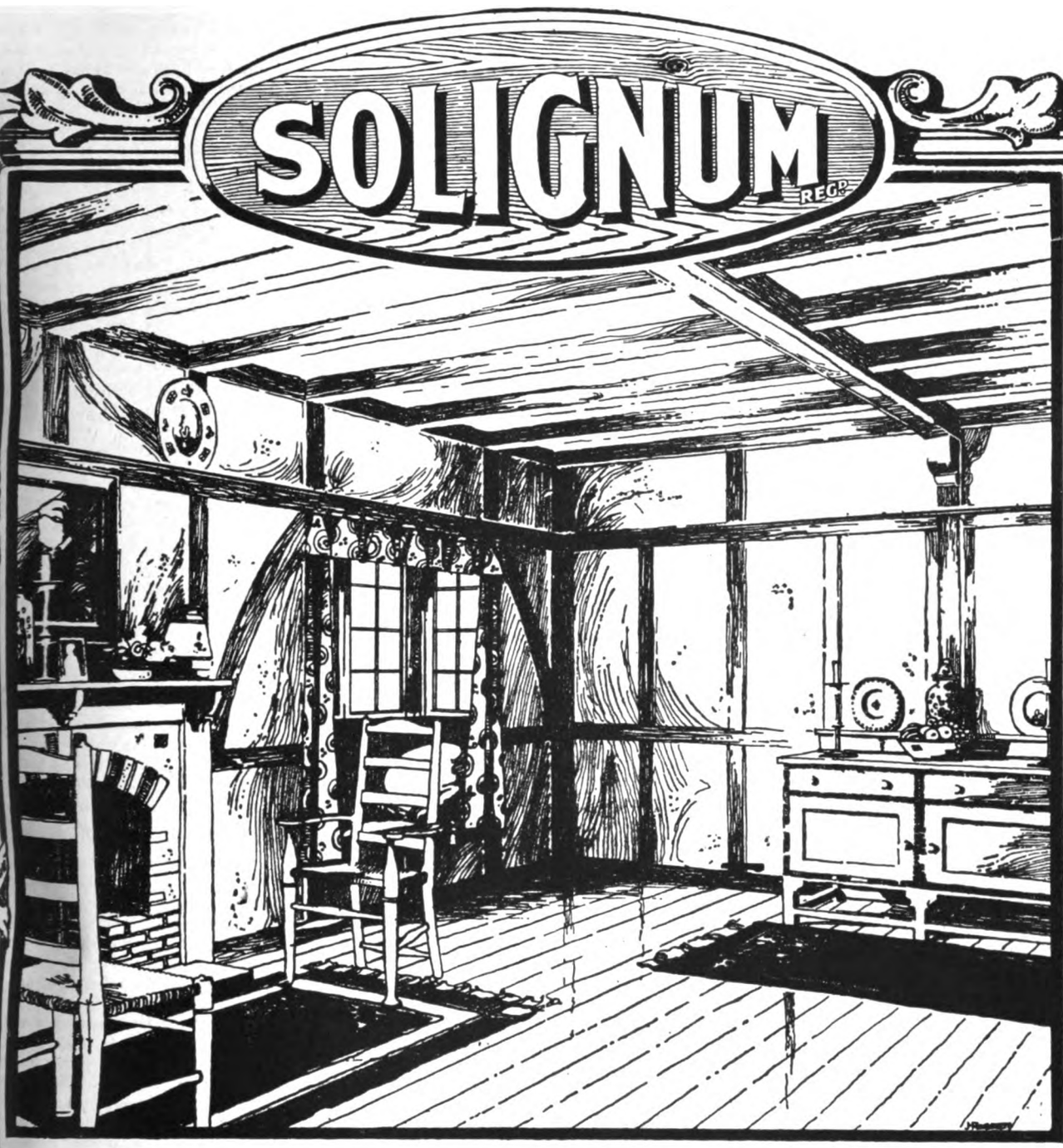
Friday, April 7.—Town Planning Institute. Meeting at 92 Victoria Street, Westminster. Paper by Mr. F. G. Baxendale, F.S.I., entitled "The Effect of Zoning on Land Values." 6 p.m.

Saturday, April 8.—Edinburgh Architectural Association. Visit to Messrs. Redpath, Brown & Co., Ltd., steel constructional engineers.

Competition News.

The Ipswich War Memorial Committee invite architects and others to submit designs for the memorial to be erected in Christ Church Park, Ipswich. Mr. Henry V. Ashley, F.R.I.B.A., will act as assessor. The designs must be submitted not later than June 17. Instructions and particulars may be obtained from Mr. G. M. B. Langdon, joint hon. secretary, 12 Tavern Street, Ipswich.

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Eastwoods Limited.

In the year 1815, that is at the time of Waterloo and the downfall of Napoleon, the firm of Eastwoods was established as brick manufacturers. During the subsequent century the business steadily expanded until it comprised nine different brickfields in Essex, Kent, Bedfordshire, and in the Peterborough district—not to mention more than that number of wharves and depots for their builders'-merchants' department. In the year 1920 this important concern was re-organised under the name of Eastwoods Limited, and is now available to assist in the material reconstruction of Great Britain after a war which far eclipses anything dreamed of by Wellington or any of his generation. It has an important directorate, including Dr. T. Cato Worsfold, M.A., J.P., M.P. (chairman); Horace Boot, M.I.Mech.E., M.I.E.E. (technical director); Lieutenant-Colonel R. J. C. Eastwood; Captain H. Reall Sankey, C.B., C.B.E., R.E. (retired), M.Inst.C.E., and Mr. F. W. Webb. The general offices are at 47 Belvedere Road, London, S.E. 1.

Though over a century old Eastwoods Limited are obviously still "going strong." This is not the place or the time to speak at length of the results of their first year's trading, which produced a substantial dividend of 12½ per cent. Our immediate purpose is to indicate the enterprise which is being brought to bear in order to enable a long-established concern to hold its own with the youngest competitors. It has been more than once pointed out that no industry has made as to its methods so little progress in the matter of invention as the building trade. By the time-honoured process, stock bricks are made by hand, dried in the open, and burnt in clamps. The uncertain equation must be the drying, which is entirely dependent upon the weather. This difficulty has now been overcome.

By a comparatively new process of drying and burning, but using precisely the same materials, Eastwoods Limited manufacture stock bricks at Conyer and Halstow, in Kent, continuously throughout the year, which, while possessing all the good qualities of the ordinary hand-made stock bricks, are remarkable for crushing strength, shape, uniformity of colour, and porosity. They are easily handled by workmen and, having a minimum of waste, costs are considerably reduced. These qualities have brought them to be in great favour in the trade. The third quality machine-made kiln burnt stocks are particularly suitable for housing schemes, for which purpose many millions have been supplied.

The entire chain of operations at these two Kent brickfields is a proof that science has come to play a big part in manufacture. The brick earth is first mixed with chalk and, after being made into liquid slurry by washing, is pumped to reservoirs, where it weathers until sufficiently plastic for use. It is then dug out and loaded into trucks which are mechanically hauled to hoppers, above the moulding-machines, where is added the necessary cinder dust which keeps it porous and also acts as a fuel. The wet bricks from the moulding machines are placed on trucks and passed into a "dryer." A typical "dryer," in use at Eastwoods' works, consists of what may be described as seven long tunnels running parallel with each other, and the drying is effected by steam and hot air. The temperature is graduated along the length of the tunnels from but a little more than the outside temperature at the entrance to about 120° C. There are seven tracks, and 30,000 bricks can be dried in twenty-four hours, during which period all the moisture is extracted. After drying, the bricks are "set" on to kiln trucks, which are automatically pushed into a kiln, also in tunnel form, the fire being graduated as in the "dryer," where they remain about five days.

A most important gain is that under this system bricks can be made, dried, burned and freighted in eight to nine days, as compared with the indefinite number of weeks under the old process. Moreover, the work can be carried on without interruption during all the twelve months. As has been already stated, the quality of these machine-made stocks will bear comparison with anything of their kind on the market. The same remark may be applied to the firm's red facing bricks produced by the same process.

Eastwoods are also the manufacturers of hand-made stock bricks at their works at Otterham and Teynham in Kent and at Shoeburyness. Their Fletton bricks made at Old Fletton and Yaxley, near Peterborough, and Woburn Sands, Beds, are equal to any pressed Flettons.

Eastwoods Limited have a notably complete organisation for distributing their goods. At all their works and depots there are sidings giving direct access to railways or wharves. They also have a considerable fleet of sailing barges.

The "Architect" Fifty Years Ago.

March 30, 1872.

Removal of the City Churches.

The movement which commenced twelve years ago, when the Legislature gave its sanction to some of the City churches with their endowments being removed to places more in need of spiritual provision, is likely to be still further extended by the Bill brought into the House of Lords last week by the Bishop of London. Many of the City churches are undoubtedly fine old architectural structures, and to the professional eye their demolition would appear little short of vandalism; but the constant demand for City improvements, added to the migration of the inhabitants to suburban districts, seem to have rendered the destruction of several of them inevitable. As a proof of the comparative paucity of City residents, it is stated that at the present time a sum of 40,000*l.* is annually received by about seventy City incumbents for the cure of the souls of about 74,000 persons. The Act of 1861 provided for the removal of seventeen of these churches (excepting in some cases the towers and spires), the value of the sites and endowments being sufficient to erect and endow nineteen new churches in thickly-peopled parishes. So far only three of these churches have been removed, but another (that of St. Mildred, Poultry) is now about to be demolished; and others are almost immediately to follow, amongst them being the church of St. James, Duke Place, the benefice of which is about to be united to that of St. Catherine Cree, in Leadenhall Street. The church of St. Martin Outwich, at the corner of Threadneedle Street and Bishopsgate Street, is also to be removed. In the new street between the Mansion House and Blackfriars Bridge passers-by will have noticed two churches standing opposite to each other. The demolition of so many houses, in order to form the new street, drove away the larger portion of the parishioners, who had to find new abodes in other districts, and those who are left have consented to the two benefices being united, and to the church of St. Antholin being sold and taken down, but the tower is to remain. The old church itself, however, will shortly be among the things that were. Several new buildings are now being erected in the street, which will to a great extent hide the other church. This is much to be lamented, inasmuch as the two handsome towers, standing almost opposite to each other, would have been very effective. The Bishop of London's new Bill for the removal of more of the City churches is of a most comprehensive character, and under its operation the greater portion of them may be demolished, new churches being erected in other districts out of the sums realised for the sites. The Bill provides for the appointment of a commission for seven years. After due enquiry as to the value of church property, the commissioners are to prepare a scheme to provide for the objects set forth in the Bill. The result may probably be the destruction of several existing parishes and staff of parochial officers, the superannuation of the present incumbents, and the demolition of their churches, assigning to the remaining churches entirely new parishes. The Bill has already evoked a considerable amount of opposition, for, whilst it is admitted that many of the City churches can well be spared, especially having regard to the possible adaptation of a portion of St. Paul's Cathedral for persons residing within its vicinity, it is urged that the Bill appears to pay but little consideration to what may be the views and wishes of persons requiring church accommodation in the City, its object being how most easily to transfer church property from within to without the City.

The Barnsley Town Council have adopted a recommendation to erect market buildings, four shops, and offices, fronting on Eldon Street, at an estimated cost of £11,000.

The Prestatyn Golf Club propose to erect a new residential club-house, to contain eighty bedrooms, ball-room, covered tennis court, &c.

The tenants of the new houses erected by the Urban District Council at Chester-le-Street, Durham, are already £9,000 in arrears with rent, and this total is increasing at the rate of £300 a week.

Plans for the conversion of the Angel Commercial Hotel, Dolgelly, into a branch of the London City and Midland Bank have been approved by the Dolgelly Urban District Council, and building operations will commence forthwith.

Mr. William Arthur Goring, of 91 Marine Parade, Worthing, formerly of Caversham, Palmers Green, builder and contractor, died on January 1, leaving gross estate of the value of £67,059 6s. 2d., with net personalty £17,334 10s. 3d.

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New Catalogues.

The Rawlplug Co., Ltd., of Gloucester House, Cromwell Road, South Kensington, S.W. 7, have just issued a 16-page booklet in which the use and application of Rawlplugs, as applied to the various trades interested, are fully described and enumerated. Many little points are brought up and suggested which will prove of paramount interest to the trade. Copies of the book can be obtained on application to the Rawlplug Company. It is interesting as a "Sign of the Times" to know that with the booklet comes a substantial reduction in the price of the Rawlplug toolholders, together with full details of the larger sizes Rawlplugs which are now being made to suit No. 16, 18, and 20 screws.

The National Radiator Co., Ltd., Hull, have issued four insets for inclusion in their current catalogue. One of these, 80a, deals with the "Ideal" accelerator for low pressure hot-water heating installations. Another leaflet relates to the "Hygia" fresh-air inlet ventilator, with removable air-filtering screen and cleaning door. A third describes the "Ideal" radiator paints as specially prepared in thirty-six standard tints for use on low-pressure hot-water and steam heating surfaces. The fourth leaflet relates to the cast-iron expansion tanks, which have been redesigned and are now made in two sizes.

Messrs. Fredk. Braby & Co., Ltd., Eclipse Works, Glasgow, have issued three new lists illustrating respectively their steel storage bins, steel barrows, and steel weather bars. As might be expected from a firm of their importance, the literature is excellently produced and arranged so as to be of the highest possible value to an inquirer. The goods, moreover, embody some quite novel features. The slogan of the company is "Buildings for Everything: Everything for Buildings." In these latest lists details are given of three products which will challenge comparison with anything of the kind on the market.

S. W. Francis & Co., Ltd., 64-70 Gray's Inn Road, W.C. 1, devote the first part of their latest catalogue to diagrams and photographs of various types of steel and wood rolling shutters -a line of manufacture in which they have for many years enjoyed pre-eminent success. It may be mentioned that their type No. 1 of interlocking steel lath shutter is accepted by the L.C.C. and other authorities in place of iron doors, in which case double shutters are used with specially deep and thick grooves. Collapsible steel gates is another important line. Among the other goods illustrated are sunblinds, metal shop fronts, engraved letters, plate-glass fascias, stall plates, metal-covered sash bars and beadings, and other furniture.

Messrs. Brown and Tawse, Ltd., 3 London Wall Buildings, E.C. 2, have devoted exactly one-half of their catalogue descriptive of "B. and T." reinforcement to a valuable set of tables. These tables are for spans fixed at both ends, or for continuous spans other than end spans, the load being uniformly distributed and supports provided on two edges only. "B. and T." mesh reinforcement is, we are told, manufactured from square twisted wires, the cross wires being interwoven with the longitudinal wires or tension members in such a way that the latter are held in position by the natural lock created by the twisting of the material. It is stocked in flat sheets 20 ft. by 5 ft. and 20 ft. by 6 ft., but can be made in any length or width required. The sheets are easily joined by a patented system of locking wires. For reinforcing brickwork it is made up in widths of 2½ in. to 7 in., and either in rolls from 20 to 100 yards or flat sheets of 10 to 30 ft. in length. The firm manufacture "B. & T." pile frames either at their works or, if in sufficient quantities, send their own men to make up the frames on the site. A short section of the catalogue treats of reinforced concrete roads and "B. & T." material.

The Edison Swan Electric Co., Ltd., Ponders End, Middlesex, &c., have brought out a very comprehensive 80-page catalogue (No. T.T. 225) of their telephones and accessories. Its contents range from cheap domestic telephones without induction coils to big installations. Telephones with throat microphone transmitters instead of mouthpieces have been adopted in a number of instances. The feature of this type is that, while insensitive to air-borne sounds, it will, when placed against the side of the throat whilst a person is talking, clearly transmit the speech, unaffected by any external noises.

The problems in design submitted by candidates for the Final Examination and the Special War Examination will be on exhibition in the Galleries of the R.I.B.A. from Friday, March 31, to Friday, April 7, between the hours of 10 a.m. and 5 p.m., Saturdays, 10 a.m. to 1 p.m.

The New All-England Lawn Tennis Stand, Wimbledon.

Captain C. Stanley Peach, F.R.I.B.A., the architect, conducted an interesting test upon the new Centre Court Stand at Wimbledon recently. This stand is being constructed in reinforced concrete on the Kahn system, and it is to be used when the championships are played in June.

It was decided to place upon the stand a human load, as it was desired that the test should closely approximate, but exaggerate, the use to which the stand would eventually be put. Workmen in the employ of the contractors, Messrs. Stuart's Granolithic Co. were therefore marshalled by Capt. Peach on to the lowest step of the centre bay on the west side of the stand, the men crowding together in order to bring the greatest possible load on to that portion of the stand. As the seats have not yet been fixed, a greater number of men were actually assembled on this bay than will ever be possible when the stand is in use.

At the word "about turn, at the double," the men swung round and swarmed up the steps to the top of the stand. They remained there until the word was given, when they clattered down again and dispersed to the exits.

The deflection which was registered when the stand was under load was hardly perceptible, and the result of the test is considered highly satisfactory. In view of the fact that the stand when completed will be called upon to seat some 10,000 spectators, the architect is naturally anxious to leave "no possible shadow of doubt, no possible doubt whatever."

Trade Notes.

The Mayfair Window Cleaning and Decorating Co., Ltd., gave at Pitts Head Hotel, Stanhope Street, W., on the 22nd inst., a commemoration dinner and concert to staff to celebrate their removal into more commodious premises at 1 Grantham Place, Park Lane, W. The toast of "The Firm" was proposed by Mr. A. Lord, J.P., and responded to by the Managing and the Assistant Managing Directors.

Messrs. George Mills & Co., Ltd., Globe Iron Works, Radcliffe, near Manchester, have received the following testimonial, *re* fire in a Heywood cotton mill, extinguished by their sprinkler: "A fire broke out in our mixing room about 7.30 on February 22. One sprinkler opened, and at once put out the fire; had it not been for the promptness in which one of your 'Titan' sprinklers came into action, no doubt we should have had a serious fire.—Wm. Wild, Ltd., Heywood."

Messrs. Charles Lathe & Co., Ltd., Tipton, have been makers of cast-iron sashes for about fifty years, and also makers of general builders' castings during the same period. They now possess a large range of shopping equipped with latest machinery, and have some of the best and most competent men in the trade to make steel sashes, cottage windows, and casements of all descriptions. Large ranges of sections suitable for this work are stocked, and architects' plans can be carefully and promptly followed. All goods are guaranteed to be of the most superior quality, and everything turned out is well fitted.

At the staff dinner of the Limmer and Trinidad Lake Asphalt Co., Ltd., at Frascati's Restaurant on the 23rd inst., observance of the company's jubilee and the completion of Sir Henry Holloway's twenty-first year as chairman made the occasion a memorable one. With ninety members of the staff present, Sir Courtauld Thompson, for the Directors, and Mr. Bodger, representing the staff, presented Sir Henry Holloway with an antique inkstand and a silver coffee service as tokens of esteem for their Chairman. Wireless messages of congratulation from America were received. In the directors' speeches a tribute was paid to the *esprit de corps* prevailing throughout the company's many branches, which cover such an extensive area of the British Isles.

The Barry District Council, acting on a report by Sir Charles Bright and Partners, have adopted a scheme for additions at the gasworks, which involve an outlay of £125,000.

The Birmingham Housing Committee last week accepted, subject to the approval of the City Council and the Ministry of Health, a builder's offer to build to his own plans houses at £450 each. The houses are to be put up at Sparkhill, and are of the non-parlour type. The price of £450 is provisional only, and may be lower if there are certain reductions in building costs. Parlour-type houses are to be built on the same site at £515. The Committee consider these houses of an excellent type.

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Zoning.

THE series of papers now being delivered at the meetings of the Town Planning Institute is devoted to a very interesting subject—the means by which the future growth of our towns should be regulated and past mistakes, as far as possible, mitigated. The title "Zoning," though objected to by some, seems to us to define the aims sought better than anything else which could be suggested, because a zone conveys the idea of a space or area, and it is by the consideration of the various activities carried on in a town, their wants and the means that should be taken to meet them, that we are in the future likely to arrive at some clear understanding of the best and most efficient methods which can be employed. Our old mediæval towns seem to have been arranged on no certain or uniform plan, but even in them men of certain occupations and wants grouped themselves in certain defined districts. Both here and on the Continent the crafts frequently gave their names to streets, and those carrying on occupations out of which nuisances arose were generally relegated to certain defined districts where they could ply their trade without annoyance to other citizens. Now as a rule there is no compulsion except that afforded by restrictions introduced into private leases, and there is nothing else to prevent a good residential district being deteriorated by the introduction of a retail shop or a row of shops. It is this question of "user zoning" in built-up districts which we find more interesting than any other, and more important both to the comfort and æsthetic susceptibility of the public. Recent history has, we think, quickened processes which were not apparent to all, but were slowly affecting men and nations. In the middle of last century we seemed to be on the verge of a period of unlimited expansion. America was then a new country, undeveloped compared with ourselves, while we held the world's premier position as a great iron- and coal-producing and manufacturing country. Overshadowed by what we saw around us in the enormous development of our towns, it was natural to believe that the period of rapid expansion was going on indefinitely. The decay of English agriculture seemed a cheap price to pay for the wealth which shipping and manufacturing industries were accumulating in our midst, and Europe had not yet thought it necessary to protect itself against the importation of our manufactured goods. The rapid growth of American population and the development of American industries, under the protection of a tariff wall, was a fact which we had to admit, but which seemed compatible with a division of the world into East and West, like that proposed by a Pope between Spain and Portugal. In the East we remained supreme, and it was not till a few decades before the Great War that we were forced to recognise that Germany was outstripping us in field after field of industry which we had complacently looked upon as our own. The War, by breaking down the barriers of national ignorance and stimulating thought, leaves us with the certainty that we have in the future to regard almost every nation as a commercial rival whose chance of success is only limited by its national resources and the energy of its people. The world has become smaller, industry and capital more mobile, and all that we can look forward to in the future is a share rather than a partial monopoly of the wealth which arises out of the development of the earth. We think these general considerations bear on the question of development and of town planning. We do not, for instance, expect in the future to see development progress in a geometrical ratio which will be reserved for newer countries, but rather that our main object should be the tidying up and improvement of such development as has taken place in the past, and it is the improvement of our existing towns, coupled with their better utilisation and comparatively modest schemes for their future growth, which should be our most practical aims. There is one city only to which this may not apply —London—for London has become a great centre of world-commerce rather than a purely English city, and it is its international rather than its national position which may cause its future development. But even as to this we cannot be too certain, for it is as yet early to foresee the full effect of recent events.

Be this as it may, we are somewhat in the position of a spendthrift who suddenly wakes up to the fact that he has dissipated half his fortune, and if he wishes to secure future comfort and safety must husband his resources. We want to concentrate and conserve the convenience of our great built-up areas, to consider how we can best utilise them for business, how we can render them healthy, pleasant, and convenient, not to carelessly add area to area outside them, leaving derelict and decayed spaces within the urban rings. As has been pointed out and wisely emphasised, it is neither feasible nor necessary to do this by great schemes of compulsory purchase, but we ought to consider our towns in detail, district by district, and having come to the conclusion that certain areas are suitable and convenient for certain purposes—residential or manufacturing—we ought to obtain the necessary powers to prevent the future use of such districts for purposes other than those laid down. If we do this it should stabilise the value of property, for those building in a residential district will no longer run the risk of seeing the value of their houses depreciated by the building of shops or factories in their immediate vicinity; and our towns will gain in character by having the stamp of a common purpose on the buildings of whole localities. America has already shown the way by the adoption of "Zoning" proposals in many of its towns; Germany has also followed, and we may be certain that a movement already so widely recognised as salutary has good cause behind it. And outside our towns there is much to be done, for the more we see of modern residential districts the more we are convinced that their growth should in the interests of both present and future take place in an orderly and

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reasonable manner. There is no reason why such regulation should injuriously affect the financial position of any private holder of property, but rather the reverse. We could point to many districts which nature intended to be delightful, but which have been so utterly desecrated by the vagaries of a few private individuals that people avoid them and their development is checked. Such checks mean that some other district as yet purely rural is chosen, and the same process goes on. A few badly placed houses and shops which become derelict are built, the price of land is raised in the hopes of a development which never comes, and the speculator passes on to try the same process elsewhere, with a similar result. It is as if we were always eagerly swallowing food which we could not digest, and what is wanted is analogous to enforced medical advice, which will prevent our suffering from the effect of our ignorance and greed and without introducing legislation which will interfere with private rights of property it is quite feasible to prevent an ignorant misuse of the land which in the end is most detrimental to the interests of all who hold private property.

For all these reasons we greatly appreciate the action which is being taken by the Town Planning Institute.

Illustrations.

CHELMSFORD CATHEDRAL: BISHOP'S THRONE. Sir Charles A. Nicholson, Bart., M.A., F.R.I.B.A., Architect.

"WICKHAM PLACE," HURSTPIERPOINT, SUSSEX. H. Bulkeley Creswell, F.R.I.B.A., Architect.

CHURCH AT WINKSLEY, NEAR RIPON. Messrs. Connon and Chorley, FF.R.I.B.A., Architects.

Notes and Comments.

The Apothecaries' Hall Shop.

Ever since the formation of the Apothecaries' Company in the reign of James I. the retail apothecaries' shop in connection with the Hall has been one of the features which have served to make the Company known. But the retail business, like the Physic Garden at Chelsea, is now disposed of and an old association is no more. The Apothecaries' Company forms a link between the city companies and the learned societies, and it must be admitted that the tendency is towards a closer connection with the latter group of bodies than with the former. It was at the start regarded with suspicion by the older guilds, and the Grocers' Company had the whole weight of the governing body of the city behind it when it tried to prevent the alienation of the sale of drugs from the Grocers. Nothing but the resolute advocacy of the King himself could have prevailed in breaking down the powerful opposition of the older associations, and favoured by the King, as they were, the early years of the Apothecaries' history was one of trouble and dispute. The Society of Apothecaries have just maintained their position among the Companies, but would seem to be not unlikely in the future to follow the lead of the Surgeons' Company, which in a later charter became known as the Royal College of Surgeons, definitely placing itself outside the Guilds. But whatever its future may be the Society of Apothecaries have a long and interesting past, while their Hall is one of the most delightful of reminders of the London of the past.

Cheap Houses.

Mr. Kingsley Wood, the Parliamentary Private Secretary to the Minister of Health, says that the cost per house has been reduced by half, and that tenders were being received for under £400 per house, there was even one tender for £388 for a house with three bedrooms, parlour, and kitchen. This is in South Wales, but we should suspect from a builder who has made sacrifices to obtain the contract! We think that harm may be done by over-statement, for if people imagined, as some of them do, that prices are still falling rapidly, they will naturally refrain from building and buying which would be a misfortune. Prices have fallen rapidly, but we doubt if they are likely to be much lower than they are now for some years, while it is even possible that they might rise a little when work becomes more plentiful. For it cannot be doubted that many contractors, to keep their men employed, have taken work at cost price, which is only a temporary measure to meet slack times. It may well be that those who are now deferring building are missing an opportunity, and that we cannot hope to see anything better than a general level which may be expressed as double pre-war prices.

The Treatment of Old Cottages.

Writing on the above subject in the "Queen," Mr. Walter Godfrey says:—

> Nothing aids the simplicity of the outward form of the building more than a clear directness in the plan. Few people reflect on the fact that a large part of the beauty of mediæval architecture (known to the modern world as Gothic) is due to the regular spacing in "bays"—that is, into equal divisions governed by the sections of the vault, and also by those of the timber roof. The mediæval building was something on the principle of those patent bookcases, which can be increased section by section of a similar pattern. Not that the builders did not know how to cross their design with a thousand picturesque fancies and superfluities, but in the main structure a just rhythm was ensured by the regular scale of each unit. An Elizabethan building, too, except in minor features, preserved a practical uniformity in the span of its roofs and its windows repeated in an even size. On such buildings ornament will sit well and attractively, when on an amorphous pile it will look odd and ill-placed. We must, then, plan with a simple directness in narrow parallelograms, set at right angles as projecting wings or continuing the body of the building. And, above all, let us have the greatest care in selecting our materials. If we use old bricks, timber, and tiles, we shall but be following in the steps of those who have built before us, for everyone who has had business with old houses knows what a large number of beams bear unmistakable evidence of having been re-used from still more ancient structures. The use of old materials or of hand-made bricks and tiles, commercially styled as of "antique" finish, is in no way counselled from a desire to impose on the ignorant or to pretend that the new is old.

The above analysis is very much to the point, and explains why so many modern restorations or additions to old buildings are disappointing in effect.

"Wrens Building Habits."

We get so much architectural information from the columns of the daily Press, that we looked with pleasurable anticipation at a letter under the above title in "The Times." At last, we were inclined to say, we shall learn how the greatest of England's architects did his work; we shall perhaps learn how we can go and do likewise. Imagine our disappointment, to be fobbed off with information about a mere bird, and that a small one! Now this moral may be drawn from our disappointment: Those who, like ourslves, feel that architecture and architects are the most important things in the world should support the technical press. Our headings are not misleading, and we do not give our readers information on issues of a secondary instead of primary importance. If we wrote of Wren's building habits we should mean the one thing worthy of discussion, and give the information wanted.

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"Wickham Place," Hurstpierpoint, Sussex.

(See Inset Illustrations.)

This house has been planned to meet modern requirements for an inexpensive house which may be run by the members of the family with the help of one servant.

Gas-fires set in brick fireplaces; lavatory basins in bedrooms served by separate heating boiler; gas-cooker and electric light have been installed. It is intended that a curtain may be run across the recess in living-room to screen table when being laid or cleared.

A brushing-room accessible from front and back entrances, where boots and wet clothes may be changed and dried, was one of the conditions of the plan.

The walls are of Sussex stocks picked for facings, and the roof is tiled with hand-made Sussex tiles of broken colour, with cement lastings. The iron casements have been hung to frames of Sussex oak, which, with the oak doors, eaves, facias, &c., have been left untreated.

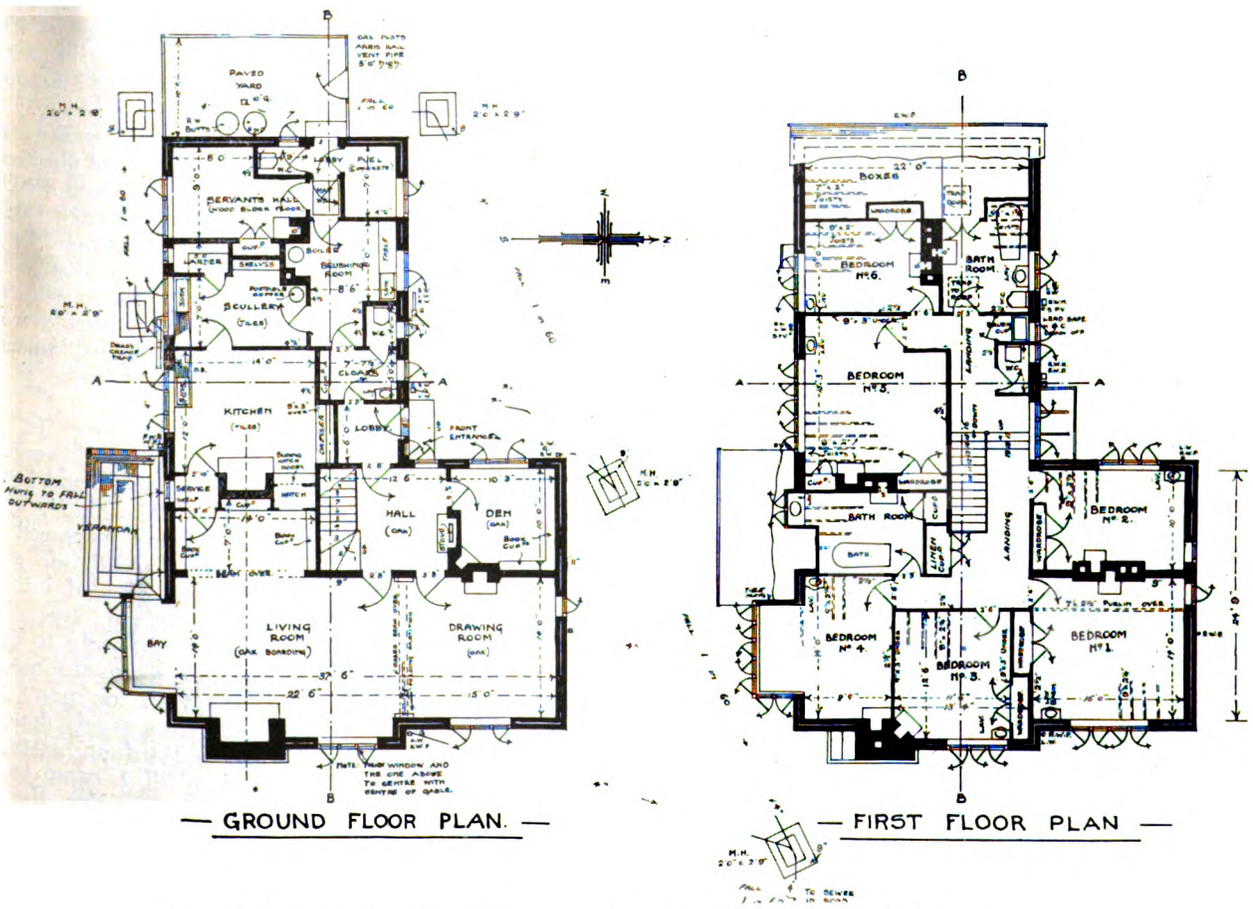
Internally the plastering has been finished with a felt-faced float for white or cream distemper throughout. The floors of the reception-rooms are of oak, and the doors, throughout, deal ledged, slightly stained and waxed and fitted with oak latches.

The design attempts to give the house the character of traditional farm buildings in the county, rather than suggest associations of the modern suburban residence. The house stands in a conspicuous position, well above a by-road, among open fields.

The builders were Messrs. F. Geering & Sons, of Hurstpierpoint and Brighton; the metal casements were supplied by Messrs. C. E. Welstead, Ltd., Croydon; and the electric light was installed by Messrs. Tyler & Freeman, London.



STAIRCASE FROM FIRST-FLOOR LANDING
"WICKHAM PLACE," HURSTPIERPOINT, SUSSEX.
H. B. CRESWELL, F.R.I.B.A. Architect.



— GROUND FLOOR PLAN. — — FIRST FLOOR PLAN —

"WICKHAM PLACE," HURSTPIERPOINT, SUSSEX. H. B. CRESWELL, F.R.I.B.A., Architect.

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Mantua.—Her Story in Art and Architecture.

By Selwyn Brinton, M.A.

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II.—The Republic of Mantua.

In the first article of this series, which appeared in The Architect of December 23 last, we reached a point in Mantuan story when the Commune of Mantua, after holding its freedom for a period of years, was eventually reduced again to subjection by the famous Countess Matilda quite at the close of her eventful life. "She died," writes the Mantuan chronicler, Mario Equicola, "in the year of our Redemption 1115," leaving the Church—of which she had been a consistent and devoted adherent—as heir to her vast possessions; but Mantua seems in time to have returned to her old position as an Imperial fief under Henry IV.

There are at this point two factors which dominate the history of mediæval Italy. One is, of course, the tremendous and embittered contest between Pope and Emperor, between Guelf and Ghibelline; the other the great movement towards liberty, which found material expression in the rapid and splendid development of the free Communes or Republics of Northern Italy. Mantua was directly affected by both. Evidently the Emperor Henry felt his position not too secure, and sought to keep this city on his side by privileges and concessions, such as those contained in his Charter or "Privilegio" of 1116; and his successor in the Empire, Lothar, and, after Lothar's death, Conrad, in 1137, pursued the same policy. Yet later in his great struggle with the free Italian Communes, the Emperor Frederic Barbarossa showers privileges, exemptions, promises on his "faithful Mantuans," and expresses his wish that his own palace should be erected near the Church of St. Ruffino. Was all this, we may well ask, pure affection, or was it the fear that in his duel with the Republics and that indomitable city of Milan this great stronghold of Northern Italy, this fastness of Mantua among her lakes, might pass over to the other side?

In any case the Mantuans seem to have grasped the situation; as they had played off Matilda against the Emperor of that day, so now between Frederic and the Republics, until finally, under Frederic II., the secular quarrel reached its inevitable crisis. All this time the Mantuans were steadily improving their position, building up the strong places of Borgoforte and Serraglio, and towards 1190 the "Ponte de' Molini," the Bridge of Mills which still exists. This famous bridge consists of a covered gallery measuring some 200 metres, and was intended for the double purpose of defending the city and of separating the waters of the Lago Superiore from the Lago Inferiore, or, to speak more exactly, from the Lago di Mezzo. It was thus a gigantic dam, through which the descending waters turned the twelve mill-wheels; and over each of these is a statue of one of the twelve Apostles, the central niche being filled with the figure of Christ. About the same time as this remarkable construction the Palace of the Podestá and the Tower of the Commune were being built, and the frontier strengthened at Borgoforte, Gonzaga, Castiglione Mantovano, to guard against Verona, and Serravalle toward Cremona. Nor were these wise precautions a moment too soon; for suddenly the storm, long threatening, broke over Mantua with terrible violence. At this time we are told that "the quiet and freedom of Mantua was disturbed by the return from Germany of Frederic II., through fear of whom Mantua, Treviso, Padua, Vicenza, and Verona joined in confederation against Ezzelino Romano, from whose counsel and will the Emperor could never depart."

Frederic II., one of the most remarkable men of his time—or indeed of any age,—himself an apostle of culture and tolerance, was at that moment defying the thunders of excommunication which Gregory IX. had hurled at his head; but to his discredit and shame he employed as his lieutenant in Italy this Ezzelino Romano, one of those creatures in whom great intellectual power was combined with a horrible blood lust. I have in my hands at this moment the old chronicle of Fra Salimbene, who describes some of the cruelties perpetrated by this man in North Italy, and which could scarcely be surpassed by those in Russia within our own time. With this Captain of his forces, consisting of Germans, Saracens, and North Italian levies, the Emperor advanced on Mantua in 1237; but he was far too able a ruler to wish to press his advantage, and when he had thus brought the city to his feet he confirmed her "Privilegio," and secured her to his side during his troubled reign.

It was after his death that the great danger came. Ezzelino now remained in power in North Italy, as Lord of Bassano and Piedmont and Captain-General of the Republics of Verona, Vicenza, and Padua. "Great though the Tyrant was"—writes old Mario Equicola—"his State seemed to him maimed and incomplete without Mantua," and with a great army he now approached that city. The moment was a terrible one for our city. On the one side a man whose military genius was defiled by horrible cruelty, of which the fate of his Paduan prisoners is an example; on the other side there emerges as leader to Mantua in this crisis one of the grandest figures in Italian history. When the poet Dante is taking his way through Purgatory, with Virgil as his guide, they come upon a solitary spirit who watches them in silence, like a lion at bay—"a guisa de Leon che posa." But when Virgil, the sweet poet, tells who they are, and whence, he springs forward with the cry: "Oh Mantuan! I am Sordello, from thine own land."

. . .

Dicendo O Mantovano, io sono Sordello
Dalla tua terra; e l'un e l'altro abbraciava.

And this Sordello is no creation of the poet's fancy, but a very real character, the hero who came forward to save Mantua in her hour of bitter need. He had married Ezzelino's daughter, and had everything to gain from the tyrant's success; but in that hour he stood faithful to his city—then more than ever "like a lion at bay." The struggle was fierce and long: Ezzelino, hearing that his own kinsman had defied him, was furious, ravaged the country around, cutting down the vines, and sent word to the city that he would plant other vines, and wait before her walls till he could drink of their grapes. The Mantuan answer came back that he should never have their city while men were left to defend her; and at length, hearing that Padua was in revolt behind him, Ezzelino was compelled to withdraw. Then it was that he took the horrible vengeance to which I have alluded; disarming his Paduan levies, he threw them into prisons where, out of 11,000 men, all but 200 perished or issued maimed for life.

"Then the Mantuans"—says Gionta in his Chronicle—"having learnt the loyalty and worth of their Sordello made him Lord of their city; and he was their first Lord since the Countess Matilda." Under his wise guidance Mantua flourished and increased: she had peace without her borders, and spread into a new as well as the old city, and became divided into four quarters. But the Commune remained free, independent, glorious, and her leader sought only to be her true servant, never her despot. It seems to me that Dante scholars (and I have been myself for many years a member of the Dante Society) have scarcely done full justice to this noble figure of the Mantuan patriot: I certainly knew but little about him till I came to dive into these old Mantuan chronicles. For the true unselfish patriot is not easy to find, in our own or any age.

Yet there is one man, and perhaps one only, to whom I would compare him in these modern times: that is the figure of the great French Marshal who saved

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his own country and western civilisation and liberty in the War, and who now, without pose or seeking the limelight, dwells as a citizen of France, enjoys his pipe and his glass of good Bordeaux wine—just as our Sordello now "dwelt at home, honoured of all, and devoted to his studies, while among strangers without his great name had spread far and wide."

London Art Galleries.

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The exhibition of "Colour-Magazine" paintings at the Grosvenor Galleries, open from March 29 to April 12, marks the achievement of a journal which has found for itself and filled a very important and useful place in our art magazines. I can recollect when "Colour" made its first appearance, under conditions so unfavourable (for it was born immediately before, and, one might say, right on the top of, the Great War) that I recommended to its editor, in all good faith, whether it might not be more prudent to at once withdraw it. He had gauged his public—I will frankly admit—better than myself, and had the courage to hold on; and it was a pleasure to be able, at the exhibition last week, to congratulate him on the result. For "Colour," from the very first, has taken no narrow or one-sided view of art: it has looked for the best in modern manifestations, and has very generally found it. As Mr. Rutter has remarked: "It has always stood for modern art, not for one particular school, group, or movement, but for all, and therefore has received, and has deserved to receive, a widespread allegiance which no one art society can claim."

Moreover "Colour" has the merit—and it is a very great merit—of having often brought forward artists whose work was little known; thus, in the present display, we meet all sides of modern art, from Ethel Walker's "Tragedy of Masks," a clever still-life, and another brilliant still-life in Orlando Greenwood's "Skin and Bone," to Fred Footet's vision in purple-blue of "Venezia," Lee Hankey's "Collector," or the brilliant drawings and lithographs of Charles Ricketts, Charles Shannon, and Spencer Pryse. A special word of praise is due to Isabel Codrington's study "At the Kitchen Door," near Spencer Watson's delightful idyll of "Nymph and Shepherd" in the first room. I understand from the editor of "Colour" that many, but not all, of the paintings shown here have appeared in that journal; but all are by artists who have had some connection with the magazine.

I have already noted the opening of the Women's International Art Club Exhibition at Goupil's Gallery. The Chairman alludes to the difficulty (from taxes and transport) of getting foreign contributions, but hopes to develop this side in future. I noted in the present display the work of Mrs. Borough Johnson, next to "Mistral" by Evelyn Fothergill Abbot and Mary McCrossan's delightful "Yellow Sail." Beside these, "The Legend of St. Hubert," by Margaret Barnard, essays in tempera a subject which had been treated by old Vittore Pisano, in his wonderful painting in our National Gallery, with far more truth to nature. The Saint, as conceived by his modern successor, looks like a damsel who is riding astride, disguised in tights, high boots, and a straw hat with a very nice blue feather; but who is perfectly safe on her mount, for he belongs to the riding school, if not the circus. Some drawings (figures and animals) by Elsie M. Henderson are not to be overlooked.

At Walker's Galleries Captain D. N. Morgan is showing some water-colour paintings of Persia and India, some of the best of which are from the Passes above Shiraz; and at the same Galleries Cyril Roberts, R.B.A., has some brilliant portrait studies in chalk and pastel. Water colours by the late Claude Hayes will be shown here from March 28 to April 22. S. B.

Competition News.

Mr. John W. Simpson, F.R.I.B.A., has been selected as professional assessor to receive the competitive plans for the Art Gallery which the Right Hon. T. R. Ferens is presenting to the City of Hull, and which will occupy a site on the City Square.

The R.I.B.A. Competitions Committee desire to call the attention of Members and Licentiates to the fact that the conditions of the Newport (Mon.) War Memorial Competition are unsatisfactory. The Competitions Committee are in negotiation with the promoters in the hope of securing an amendment. In the meantime Members and Licentiates are advised to take no part in the competition.

On March 29 the Secretary of the Royal Institute of British Architects cabled to the Mayor of Auckland with reference to the Auckland War Memorial Competition, as follows: "Gunson, Mayor, Auckland, New Zealand.—Corrected conditions received London March 18, further answers expected middle April and middle May; drawings must leave London April 26 to arrive Auckland June 30. Time for completion obviously insufficient committee enphatically request date for despatch of designs from London be fixed June 30. Please cable reply." The following cable was received on March 31 in reply:— "Ribazo, London. Agree your request extension June 30 London, subject plans being shipped first mailboat thereafter."

From the particulars issued by the Ipswich War Memorial Committee it appears that the cost of the proposed memorial in Christchurch Park must not exceed £4,500. The Committee suggest that "the memorial should be a restrained and dignified architectural composition, of such a character as to fittingly record the names of some 1,400 who have fallen." Premiums of £150, £75, and £50 will be awarded to the authors of the designs placed respectively first, second, and third by the assessor, Mr. Henry V. Ashley, F.R.I.B.A., of London. Designs shall be delivered, carriage paid, and addressed to the Joint Honorary Secretary, Mr. G. M. B. Langdon, at 12 Tavern Street, Ipswich, on or before June 17. Any questions must be sent to Mr. Langdon not later than April 15.

Forthcoming Events.

Friday, April 7.—Town Planning Institute. Meeting at 92 Victoria Street, Westminster. Paper by Mr. F. G. Baxendale, F.S.I., entitled "The Effect of Zoning on Land Values." 6 p.m.

—— London Society. Meeting at 18 John Street, Adelphi. Paper by Dr. C. W. Saleeby, F.R.S.E., F.Z.S., entitled "More Light on London." 4.30 p.m.

Saturday, April 8.—Edinburgh Architectural Association. Visit to Messrs. Redpath, Brown & Co., Ltd., steel constructional engineers.

Monday, April 10.—Surveyors' Institution. Meeting at 12 Great George Street, Westminster. Paper by Mr. H. A. Pritchard, F.S.I., entitled "The Experiences of a Divisional Officer (Timber Supply Department) during the War." 8 p.m.

Tuesday, April 11.—International Building Trades' Exhibition, Olympia, to be opened by Mr. Paul Waterhouse, P.R.I.B.A., M.A., F.S.A. 12 noon.

—— Royal Sanitary Institute. Meeting at 90 Buckingham Palace Road, S.W. Discussion to be opened by Sir Henry Tanner, C.B., I.S.O., F.R.I.B.A., on "Economy in Sanitary Appliances and Methods of Drainage." 5.30 p.m.

At a town's meeting at Scarborough, last week, to consider the town's war memorial, three schemes were submitted for consideration. These were: (1) An obelisk, with surrounding terraces, on Oliver's Mount; (2) a monument on St. Nicholas' Cliff; (3) a memorial in Alma Square, abutting the main street. It was finally decided to adopt the recommendation of the subscribers and select the Oliver's Mount scheme, prepared by Mr. H. W. Smith, borough engineer, and estimated to cost £6,000.

A meeting of the Council of the Institute of Scottish Architects was held at 177 George Street, Edinburgh, on the 30th ult., Mr. A. G. Heiton, vice-president in the chair. It was resolved to continue the gathering of information regarding existing by-laws in connection with the compilation of a new building code. One fellow, three associates, and twenty-five students were elected to membership. The members of the Council for the ensuing year were fixed at one president, one past-president, five vice-presidents, fourteen chapter representatives, and three institute representatives.

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Copy of Medal to be presented annually by the Société des Architectes Diplomés par le Gouvernement to the Architectural Association for the best Student of the Year who has completed the Diploma Course.

Royal Institute of British Architects.

THE eleventh general meeting (ordinary) of the Royal Institute was held on Monday, April 3, at 9 Conduit Street, W., Mr. Paul Waterhouse, President, occupied the chair.

The Hon. Secretary announced the death of Frederick William Marks, who was elected an Associate in 1887 and a Fellow in 1905. A message of sympathy and condolence will be conveyed to his relatives.

The congratulations of the meeting were given to Mr. G. Gilbert Scott on his election as R.A.

Mr. Stanley C. Ramsey, F.R.I.B.A., then read a paper, from which we give extracts, entitled:—

London Clubs.

The Clubs of London, considered as a group of buildings, are amongst our most cherished possessions. We speak of them collectively, as we speak of the "City Churches" or the "London Squares," as something peculiar to and inseparable from London life.

Mr. Ralph Nevill, in his book on London Clubs, tells us that "the modern club, with its luxuries and comforts, has its origin in the tavern and coffee-house of a long-past age." He mentions the "Mermaid," which is supposed to have been the meeting-place of Shakespeare and Ben Jonson, as one of the earliest of London's clubs. But it was the coffee and chocolate houses of the seventeenth and eighteenth centuries which formed the nucleus of so many of our famous clubs. The proprietors found that as time went on it paid them to exclude the general public and to run these houses for the benefit of their regular *habitués*, who themselves decided by election who were and who were not to be allowed to join them. Afterwards committees took the management of the clubs out of the hands of the proprietors and ran them for the benefit of the members. Thus we find the name of the original proprietor or the name of the coffee-house is to-day the name of the club, such as Arthur's, White's, Brooks's, and Boodle's.

These earlier social clubs are to be found in St. James's Street, a street conveniently adjacent to St. James's Palace, and famous in the annals of the eighteenth century. Pall Mall is the chosen neighbourhood of the literary, political, and Service clubs of the early and middle nineteenth century; whilst the later social clubs are to be found for the most part in Piccadilly. There are, of course, other clubs dotted all over London, but this is Clubland proper.

Many of the club buildings have undergone strange and, in some cases, sad experiences, whilst, happily, many others remain practically as they were built. The buildings themselves are not all of equal architectural importance, some very famous clubs being represented by very unworthy architecture, and others, though perhaps having an interesting façade, have been spoilt internally by thoughtless renovations and alterations. Again, the interiors may have survived practically unchanged, whilst it is the exteriors that have suffered by subsequent so-called "improvements."

Brooks's Club, on the west side of St. James's Street, is one of those famous centres around which the brilliant social life of the latter half of the eighteenth century revolved. There is a distinct Georgian atmosphere about the place and the street which, in spite of the changes of the last 150 years, persists to this day—a flavour, as it were, of that attractive and cultured life which we associate with the period of its foundation; and thus it is no difficult work for the imagination to people the district with the well-known figures of Fox, Pitt, Burke, Sir Joshua Reynolds, Hume the philosopher, Gibbon the historian, with Garrick and Sheridan—all of whom were members of Brooks's.

The club was founded in 1764, and its original headquarters would appear to have been in Pall Mall. In 1774 Brooks became the master of the establishment, and in 1778 he built the present premises, which henceforth bore his name. There seems to be some doubt as to who was the architect of the building. The land was conveyed to Mr. Brooks from Henry Holland, who has been credited with the design, though competent critics have ascribed the work to James Wyatt. The elevations have suffered from subsequent alterations, and the original character has been somewhat lost. The interior has had a much happier fate, so that much of its original charm remains. The large smoking-room on the first floor (the "Great Subscription Room"), is a magnificent apartment. It has a splendid barrelled ceiling, and the ornament throughout is beautifully detailed and executed.

Brooks's is expressive of the older kind of club, and is one of a famous group such as Arthur's, White's, and Boodle's; a more purely social institution as compared with the great political clubs like the Reform, the Carlton, and the Conservative, which did not come into being until the early part of the nineteenth century—one of the direct results of the broadening and consolidation of the two great national parties on the more democratic basis caused by the economic developments of this time.

One of the most famous of the eighteenth-century clubs in St. James's Street is White's; but although important socially and historically, it has little architectural interest. The present front is the work of Lockyer, who remodelled the façade in 1850. The result, though by no means a brilliant piece of architecture, is interesting as a Victorian essay in the eighteenth-century manner. The finest room in the club is the coffee-room. Probably the

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most interesting thing about White's architecturally is that Robert Adam, in 1787, prepared a scheme for what was practically the entire rebuilding of the club. If this had been carried out, White's would have been the finest of the eighteenth-century club buildings; but, alas! Adam's scheme remained a paper one. The original drawings may be seen in the Soane Museum.

Boodle's Club is on the same side of St. James's Street as White's, and almost opposite Brooks's. Of all the eighteenth-century clubs that remain to us, this is the most complete both externally and internally. The design has generally been attributed to Robert Adam; but a few years ago Mr. Arthur Bolton showed there was not a shred of direct evidence to connect Adam with it. However, we can quite safely say that it belongs to the Adam school. The street elevation is well known to all students of architecture. The interior has been almost as little altered as the exterior. The finest room in the building is the large saloon on the first floor. Originally the gambling-room of the club, it is now simply known as the saloon.

The lecturer said that of all the clubs in Piccadilly his favourite, architecturally, was the St. James's. Coventry House, No. 106 Piccadilly, was originally built by Sir Hugh Hunlock, but, unfortunately for Sir Hugh, he appears to have built without counting the cost, and in 1764, when the house was still unfinished, he was compelled by the force of circumstances to sell to the sixth Earl of Coventry, who purchased it for 10,000 guineas, with an annual ground rent of £75. Robert Adam was employed on the finishing and decorating of the interior. Who was actually responsible for the original design of the building is uncertain. Certain features seem to indicate Sir William Chambers as the author, particularly the treatment of the principal staircase giving access to the upper rooms. The principal front is one of the most dignified and noteworthy façades in Piccadilly, and can more than hold its own when compared with more important and better-known buildings. It is, as the date and the foregoing summarisings would suggest, a building of the late Palladian period, and is a delightful example of restrained artistry. The design may be said to be the last brilliant flicker of the old school, which was shortly to give place to the works of Adam and the later men. Though built originally as a private house, the building is singularly well adapted for the purpose of a social club such as the St. James's, and it is happy in having escaped spoliation at the hands of the modern decorator, whose misdirected efforts have resulted in the partial or complete ruin of many similar buildings.

The Union Club is a link between the clubs of St. James's Street and those of Pall Mall. The present home of the club, forming, with the College of Physicians, a complete block of buildings on the west side of Trafalgar Square, was built from designs by Sir Robert Smirke, R.A., in 1822. Smirke's work, taken as a whole, is by far the most important that was carried out in London during the early part of the nineteenth century. His buildings are remarkable for the simplicity of theme, the skilful disposition of his masses in elevation, and the subordination and scholarly treatment of his detail. His chief weakness was his inability to grasp the broader significance of his plan. The block of buildings of which the Union Club forms part, forming, as it does, the side of a square open on three sides, should have been considered in relation to the design of the whole area, and the placing of the hexastyle portico which forms the entrance to the College of Physicians facing towards, instead of away from, the National Gallery, was a mistake. The elevation of the Union Club towards Trafalgar Square is, considered by itself, a well-balanced and appropriate façade for its position. It is when we come to consider the direction which is given to it by ending the plan on the north side by the portico already referred to, and treating the foot of the plan in Cockspur Street with the bow-window to the morning room of the club—a charming feature in itself—that we realise this error in principle.

The United Service Club, built by Nash in 1828, was altered and embellished by Decimus Burton in 1858, a proceeding which, judging from drawings that exist of the original fabric, must have robbed it of much of its essential charm. The members of that year, discontented with the somewhat severe and chaste lines of the exterior, called in Burton "to ornament and improve it," to use a felicitous phrase. Burton consequently proceeded to do so with great gusto. Fortunately, Decimus Burton's efforts were chiefly confined to the exterior; the interior retains more of the true spirit of Nash. It is particularly difficult to reconcile the work of Burton on this building with what he did at the Athenæum, on the other side of Waterloo Place, and it can only be explained by the change in public opinion during the intervening years and the resultant effect on the architect. Internally the most impressive feature is the grand staircase, which must rank amongst the great examples of London.

On the opposite side of Waterloo Place is the Athenæum. It stands on what was the west end of the courtyard of old Carlton House, and was erected from the designs of Decimus Burton in 1830, at a cost of £35,000. The architect was only twenty-seven years of age when he received his commission for the building, and it is doubtful if he ever built anything in later years of equal importance which so adequately represented his skill. In his day the productions of Stuart and Revett were the guides of the "orthodox," and Burton accepted them without question; he never displayed that masterly adaptation and distinctive application which mark the works of Elmes and Cockerell, and he never appears to have had the slightest hesitation in using Roman and Greek motifs more or less indiscriminately. His work is chiefly remarkable for its refinement and restraint, for a feeling for fine though not original detail—qualities which are particularly well exemplified in this building. If anything, he would appear to have had a leaning towards Roman rather than Greek prototypes, though he designed many buildings in the fashionable Greek manner of his time. The exterior of the Athenæum is certainly more Roman than Greek.

A noteworthy feature of the exterior is the balcony dividing the two storeys. The skilful treatment of this is particularly worthy of study. A very good example of Burton's indifference to thte rigid claims of style is seen in his design for the impressive entrance hall of the club, which has a Roman barrel ceiling, richly coffered, supported by Greek Corinthian columns modelled on the well-known example from the Tower of the Winds at Athens.

Proceeding along Pall Mall East, the next club to the Athenæum is the Travellers', which was built in 1832 from the designs of Charles Barry, for what would now seem to be the very moderate sum of £23,000. It was one of the architect's first commissions, and his adoption of the astylar treatment in the manner of the earlier Italians, at a time when no building of any pretensions was considered complete without its columnar front, together with the beautiful character of the design, made this building famous. The elevation of the club to Pall Mall is a masterpiece of quiet and forceful composition. The rear façade facing Carlton House Terrace is much more original, though not less beautiful. The plan of the building is quite as interesting and as well deserving of study as the elevations.

The Reform Club owes its name to the famous Bill of 1830-32. An open competition for the design was held in 1837, when Barry—in preference to Blore, Basevi, Decimus Burton, and C. R. Cockerell—was awarded the first place, and received the commission. The responsible members told their architect to build "a larger and more magnificent house than any other," in face of which incitement to excel Barry displayed a notable restraint in the handling of his design, so that, in a street of modern palaces, the Reform more than holds its own for stateliness of conception and dignity

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of treatment, and yet is notable above all for its extreme simplicity and repose.

Barry has been frequently charged with copying the Farnese Palace. Though the memory of the Farnese may perhaps have inspired Barry, a critical observer with a knowledge of both buildings would no more accuse him of plagiarism than he would accuse Inigo Jones of having copied one of Palladio's buildings in his design for the Banqueting Hall in Whitehall. From the study of the palaces of the mid-Renaissance period, Barry, by a wonderful transmutation, achieved a building as distinctive in its individuality and as expressive of its purpose as any of the works of San Gallo, Peruzzi, or Michael Angelo. His example has been widely followed both here and in America, and in a sense he may be said to be the originator of the great modern club. McKim's design for the University Club in New York may be cited as a recent example of a similar treatment.

The plan has a directness and simplicity of treatment which it would be difficult to improve upon, particularly with regard to the axiality of the corridors and entrances to the various apartments and the espacement of the windows, which have been as carefully considered in relation to the different rooms they light as in the external elevations.

The Conservative Club, though geographically situated in St. James's Street, in design and character belongs to the Pall Mall group. Historically, it is the link between the Oxford and Cambridge and the Carlton. It is a typical building of the Early Victorian period, exhibiting, as do most of the works of the architects of this time, a curious fusion of Greek and Italian motifs, with a good, strong dash of Roman. The majority of the Early Victorian architects had been educated in the severe school of the Greek Revival, and, as if chilled by the frigidity of this atmosphere, they turned away to warm themselves at the fire of the Italian Renaissance. Occasionally they burnt their fingers.

The design for the Conservative Club was the joint work of George Basevi and Sydney Smirke. The exterior was the joint work of both architects, but the interior decorations on the ground floor were exclusively finished from Basevi's designs, and the first floor from those of Smirke.

The Carlton is more than a club—it is an institution. Built by Sydney Smirke in the Italian manner favoured in the 'fifties of last century, at a time not usually considered to be altogether favourable to the finest expression of the Arts, it is nevertheless an exposition of a very complete and definite idea.

On the opposite side of Pall Mall to the Carlton is the Army and Navy, at the corner of King's Street leading to St. James's Square. Externally this is one of the finest club-houses in London. It was built in 1848 from the designs of Messrs. Parnell and Smith, who adopted as their model the Palazzo Rezzonico at Venice.

In conclusion, the lecturer showed a few views of one modern club in Pall Mall—the Royal Automobile, by Messrs. Mewes and Davis—because this marked a definite break with the old form of club-house and inaugurated a new era in club design. In effect, the Royal Automobile Club was something more than a club, and had some of the characteristics of an hotel—it is the largest of all the London clubs; in fact, probably it is the largest club building in the world—and most people would doubtless agree that architecturally it quite holds its own when compared with any of its distinguished neighbours. When it was first erected the French character of its design was somewhat severely criticised as being out of place in a street of Italian palaces. But if we accept the fact, which probably no one will deny, that it is French architecture that has been the dominating influence in the design of the public buildings erected in this country during the first quarter of the present century, then the Royal Automobile Club is as true an expression of our age as were the Anglo-Italian buildings of the Early Victorian.

Discussion.

The Right Hon. Lord Justice Warrington (Chairman of the Committee of the Athenæum) said he felt great pleasure in proposing a vote of thanks for the extremely interesting and instructive paper they had just heard. As a layman, he did not feel himself competent in a company of architects to express any views on the relative architectural merits of the buildings described. In his opinion, the clubs of the eighteenth century were by far the most attractive of those exhibited on the screen, and he would give the palm to St. James's Club in Piccadilly, which, particularly in its façade, seemed to possess that dignity and simplicity which characterised much of the eighteenth century—not merely the architecture or any other of the arts, but which extended to literature as well. Coming down to the buildings of a rather later period, the most attractive, to his mind, was the Travellers' Club. After that a deterioration set in, and one came to such buildings as the Carlton. It would be some comfort to modern people, perhaps, that the design of the Royal Automobile Club has gone back rather to the simplicity and plainness of the earlier period. Anyone walking about London could not help being struck by the greater beauty of the buildings erected during the last thirty years compared with those which immediately went before.

General Sir Henry MacKinnon, G.C.B., K.C.V.O. (Chairman of the Travellers' Club) briefly seconded the vote of thanks.

Mr. A. J. Davis remarked that the only fault to be found with the paper was that it was too short. There were many other interesting examples they would like to see. Of late years there had been a great transformation in clubs. The plans of a modern club were much more complicated, and have to deal with many more requirements than was necessary in the old days. In the speaker's opinion, the display of taste was far greater in the eighteenth than in the nineteenth century. It was to be hoped a greater simplicity would in future be shown. Not many clubs have been erected lately. Numbers of fine buildings could be converted very satisfactorily to serve such a purpose.

Mr. F. R. Hiorns said that in her clubs London possessed a group of buildings very representative of Italian architecture, and which reminded one both of Italian cities and Italian masters, of Vicenza, and of Buonarotti. A club offered an opportunity for an architect because the planning was comparatively simple and the treatment has to be refined and dignified. There were few things finer in London than the Athenæum, the Travellers, and the Reform. The general aspect of Pall Mall, and particularly the view from near the Duke of York's column, was more suggestive of Imperial Rome than anything else in London. To any architect it must ever seem a source of delight. If it was true that conversation was the laboratory and workshop of the student, then they would require clubs which provided an opportunity for persons to sharpen their wits on one another. If it was true that architecture formed an important part in our environment, it was only right and fitting that the use of a club should be associated with the noblest aspects of architecture.

Mr. Paul Waterhouse, in putting the vote of thanks from the chair, said he thought the lecturer had handled his subject, which might have been a difficult one, very admirably. They had just heard an essay on the subject, and not a catalogue of slides. They would be especially grateful to Mr. Ramsay for showing so many interior views. The task of the older men was mere child's play compared with what Mr. Davis and his partner had to face in the Automobile Club, which was quite different in character and of enormous membership. He heartily congratulated the two designers of that marvellous club, which proved that the modern generation was capable of grasping a problem which might well have overthrown their predecessors.

The vote of thanks was carried by acclamation.

Mr. Ramsay having very briefly acknowledged it, the meeting terminated.

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Modern Methods in Building Construction.—XI.*

By Albert Lakeman, M.S.A., M.C.I.

PART II.

Foundation Work.—The importance of good design and execution in the foundation work of a large structure cannot be emphasised too strongly, because any defects which occur through lack of proper precautions in this part of any building will be the most difficult and costly to deal with at a later date. Defects in the superstructure will probably be apparent and the members of the building above ground will be accessible to a certain extent, whereas the foundations can develop defects which may not be apparent until the stability of the whole structure is endangered, and furthermore the making good of such defects may not be a practical proposition without the demolition of some of the superstructure.

The object of the foundations is obviously to provide a proper and sufficient bearing on the soil, and to distribute the weight of the superstructure and its contents over a sufficient area to prevent the safe pressure on the soil being exceeded. If the soil is overloaded, the earth will be compressed and allow the foundation to sink down to a level below that at which it was formed, and in consequence settlement will occur. This settlement will affect the superstructure, and its effect is likely to be intensified at all those points where the slightest weakness occurs. Some settlement will be found to take place in all buildings due to the compressibility of mortar joints, shrinkage of materials, and other causes, but a small settlement will not be detrimental *provided it is uniform*. Damage is caused to a structure by *unequal* settlement, and it is this fact which makes it necessary to design all the foundations and footings with care, so as to give as nearly as practical a uniform pressure over the whole area of the weight-carrying portions. This will be clear if it is realised that where there are two columns supporting the ends of a beam, and one carries a heavy load and the other a light one that if the foundations are made the same size the pressures on the soil will be unequal, and the settlement of the one will probably be greater than the other. In this case the effect would be to throw the beam out of the horizontal, whereas if the footings were proportional to the load, and both columns settled equally the beam would remain horizontal, and no serious defect would be likely to arise. The loads coming on the various points should be carefully calculated, and each part should be designed to spread this load uniformly over the soil and give a pressure not exceeding the safe pressure per unit according to the nature of the soil. The bearing capacity of the ground can be determined by a practical test if any doubt is experienced as to the safe load that can be applied, but this is not generally necessary, as the values of the different soils have been determined by authorities, and each class of soil should be loaded only with the standard safe load as stated in the regulations of the different authorities. It is advisable to make trial holes to determine the exact nature of the ground, when this is not known, before the foundations are designed, and any bad patches that may be met with during the operations must be specially dealt with according to the circumstances of the case. The safe loads on soils in the London district as given in the London County Council (General Powers) Act are follows:—

Natural bed of soft clay, or wet or loose sand—one ton per square foot.

Natural bed of ordinary clay or confined sand—two tons per square foot.

Natural bed of compact gravel, London blue clay, or chalk—four tons per square foot.

These loads can be taken as a general guide to the safe pressures permissible, and very few conditions will be met in ordinary work where these pressures will not be sufficient data for the designer; and the by-laws for the particular district in which the work is situated must of course be taken into consideration. Accuracy of setting-out and in the execution of the work to the foundations is, of course, extremely important, because errors that are made will be costly to remedy, and if not detected before the superstructure is commenced will involve serious complications, expense, and delay.

A great deal could be written on the characteristics of different soils, methods of testing, bearing values, and other aspects, but it is not proposed to give a comprehensive treatise on this phase of foundation work as same can be found in many good text-books, and the present notes are concerned principally with modern methods and their application.

Ordinary Soils.—Under the heading of ordinary soils can be included all work which does not require special treatment in design and execution owing to the conditions being of an ordinary character, and there is very little scope for any particular modern methods, because the work is straightforward and no special appliances or equipment are justified beyond those which are general to the preparation and handling of materials for the whole of the work. As an example the mixing, transport, and placing of the concrete affords scope for the use of modern methods, but, as these will be dealt with under the section dealing with concrete work generally, it is not necessary to deal with same here.

The whole of the work should however be kept as simple as possible under the circumstances, and great attention should be paid to practical requirements, as it will not always prove economical or expeditious to adhere to purely theoretical forms. A very good illustration of this is provided by the two types of concrete foundation

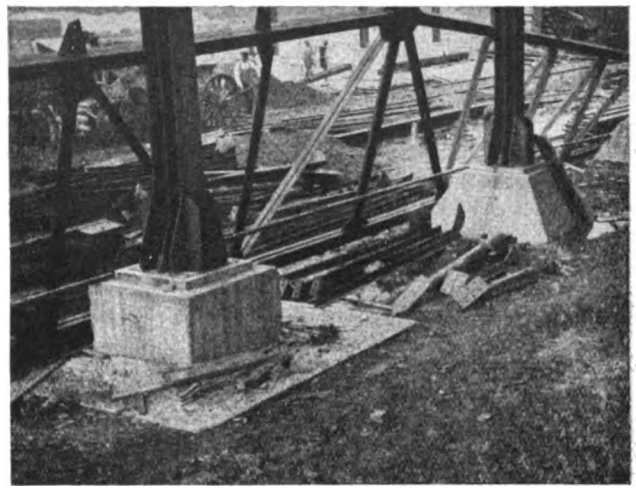


FIG. 61.—ALTERNATE COLUMN FOUNDATIONS.

for steel stanchions shown in fig. 61. It will be noticed that several of these are splayed, while the one in the foreground is rectangular on plan and in section, and it is the latter type which is the most economical in time and cost. A very large scheme was being executed where several hundred large stanchion foundations had to be put in and the design was prepared to give the minimum amount of concrete which resulted in the theoretically ideal splayed type, but when the work was commenced it was found to present several practical disadvantages. In the first case the forms were comparatively costly to make; and, secondly, the excavation had to be made larger than the base to allow room for placing

*I. Introduction, Steam Shovels, Jan. 13; II. Steam Shovels (*cont.*), Trench Diggers, Jan. 20; III. Grab Buckets, Scrapers, Jan. 27; IV. Drag-line Excavators, Feb. 3; V. Derricks and Cranes, Radial Loaders, Feb. 17; VI., Surplus Soil Transport, Feb. 24; VII. Surplus Soil Transport (*cont.*), Mar. 3; VIII. Surplus Soil Transport (*cont.*), Mar. 10; IV. Surplus Soil Transport (*cont.*), Mar. 17; X. Surplus Soil Transport (*cont.*), Mar. 24.

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and removing the form. The removal of the forms was also difficult, as, if made in one piece, they had to be drawn upwards, which means rigging up rough tackle, owing to the large size and weight, and if made in sections they were found to get damaged and lose shape. The most serious disadvantage however was the fact that during the placing of the mass concrete the whole form lifted up and each one had to be loaded to keep it down. Imagine a contractor making the excavation placing the form and filling back the soil around the form or loading it with sacks of sand and gravel during concreting, and then having to remove all this material once more in order to draw the form! This is an actual fact, and when the writer criticised the work and proposed the rectangular type, some considerable opposition was met with on account of more concrete being required. It was pointed out that the following advantages would be gained by the change of type: (*a*) The excavation would only require to be the exact size of the bottom of the concrete; (*b*) less formwork would be required, as only the upper portion need be shuttered; (*c*) the formwork would be easier to make, and, therefore, cheaper; (*d*) it would be easier to place and withdraw, and would consequently have a longer life; and (*e*) no loading during placing of the concrete would be necessary. The two types were then executed side by side, and the advocates of the splayed type, together with the writer, kept actual costs, with the result that it was admitted that the rectangular type, in spite of the extra concrete, was at least 15s. cheaper per base, and the saving in time was considerable.

Another aspect which must not be lost sight of is that with the splayed type labour employed in loading and unloading the forms was not performing work of a permanently useful nature and the moral effect was not good.

Splayed column foundations are often employed successfully in reinforced-concrete work, and the writer does not necessarily condemn them entirely, but for large plain concrete foundations they are far from ideal.

Ordinary wall foundations do not present any particular difficulties, and no special comments are necessary, with the exception that where the trenches for these are cut with a mechanical trench-digger of the minimum width it will prove economical and expeditious to arrange for such trenches to be filled with concrete to a level just below or above the surface of the ground, as such method will obviate the necessity of a wide trench for a bricklayer to work in, and all shuttering will be avoided except a simple form of planking where the concrete is carried above the ground level. If the concrete work follows as closely as possible behind the excavator the necessity of any planking and strutting of the soil will also probably be avoided, while sufficient bearing area on the earth will be obtained for any reasonably light type of wall. The regulations calling for brick footings in addition to the concrete foundation would, of course, not be complied with by this method, but as these footings are now generally recognised as being unnecessary and most authorities will agree to their omission, no difficulty should be experienced in this respect. In the case of wall foundations where underpinning has to be executed, the conditions are such that the work must be carried out on different lines, and separate sections of a reasonable length only should be executed at one time. When any foundation is a deep one, and the soil is at all liable to slip, timbering could be, of course, resorted to, more especially if the faces of the cutting are exposed to the action of frost and subsequent thawing. The secret of economical work in foundations of this kind is to organise the whole of the trades to allow a rapid sequence of operations, and permit the foundations to be put in quickly when the digging is executed, and under some conditions it will be more economical to stop the excavation work and let the other trades catch up than to proceed with opening up excessively long lengths of trenches and cuttings, when the sides must either be strutted or they will fall in owing to long exposure.

Soft Soils.—Soft soils may include soils which are deficient in bearing capacity near the original surface, but overlying a hard strata situated a few feet down, or soft soils of great depth with or without a hard strata within a reasonable distance for building purposes from the surface. This class may also include in some cases made ground where same is of sufficient depth to affect the design of the foundations, and the methods to be employed will be influenced by the depth of soft soil.

The classification is intended to cover the condition where it is unsatisfactory to provide foundations at the minimum level from the surface necessitated by atmospheric influence, without taking special precautions or making some provision for additional spreading of the loads on account of the poor carrying capacity of the soil. At the same time it is not intended to cover in this class the case where the ground is waterlogged, and difficulties which arise from the presence of water during building operations, and after the structure is complete.

When the foundation has to be provided in a soft soil or made ground of a depth of, say, 8 or 10 ft. it is possible to deal with the conditions in one of three ways—viz.: (1) Execute deep excavations and carry the whole of the foundations down to the hard strata; (2) provide a certain number of supports down to the hard strata at selected points only, and connect these with beams or a raft at about the surface level to carry the superstructure; and (3) construct a raft at about the surface level over the whole of the area of the building to give a minimum unit pressure on the soft soil. In the case of soft soils of great depth the excavation and carrying down of all the foundations will not be a practical and economical solution, and a raft over the whole area, or the provision of piles or similar supports, must be adopted. Before proceeding to discuss any of these methods in detail it must be clearly understood that the nature and proposed use of the building will have a far-reaching effect on the design and type of foundation employed if the work is to be carried out in the most suitable manner. This may appear somewhat exaggerated at first sight, but the reader who is familiar with factory construction and conditions or who has dealt with any buildings wherein machinery has to be installed will appreciate the statement. As an example, the use of a raft will mean that provision must be made at the outset for any large machinery beds that may be required, and if changes are subsequently necessary some considerable difficulty may be met with in providing the requisite bearing in a different position. Again additional drainage lines, underground pipe lines, and floor trenches are likely to be called for from time to time in industrial buildings, and, if a foundation raft is formed near the surface, these will be difficult and costly to instal. It must be borne in mind that an enterprising building owner who is operating a factory will need to keep pace with modern developments in process and machinery, and in consequence changes will frequently be made, not through lack of judgment in the first instance, but as the result of a progressive policy. In many large machine foundations also it is not sufficient merely to spread the load over a given area of soil, but to provide, in addition, a heavy mass which will keep the machine steady by its dead weight, and, as this mass must invariably be below the floor level, several feet of excavation will be necessary at such points whether a raft is employed or not.

If a raft is constructed and a new bed has to be put down, then a large expense will be incurred in breaking up a strong material.

When piles or piers down to the solid strata or for considerable depth are sunk and these are connected by beams to carry the superstructure, it will be necessary to provide additional supports for any internal loads of a heavy nature when the work is executed, or considerable difficulty will be encountered at a later date when the building is finished if such loads due to machinery have then to be dealt with.

(To be continued.)

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Studies of the English Sculptors from Pierce to Chantrey.

XI.—John Michael Rysbrack (1693-1770)—*cont.*

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"THE SURRENDER OF MARSHAL TALLARD TO THE DUKE OF MARLBOROUGH." (Soane Museum.) By RYSBRACK.

We have already mentioned that the model for the Blenheim relief, which was sold by auction in 1766 with other models for that monument, is in the Soane Museum; it remains to point out what I hope to show in detail elsewhere: that the terra-cotta statuette of Vandyck in the Soane Museum reproduced in our previous number is obviously that referred to with admiration by Vertue. Both deserve all the praise that the antiquary lavished on Rysbrack's models, and it would be hard to find their betters among the works of Roubiliac.

Rysbrack's success was in fact so patent that his early patron Gibbs seems to have got him the position of Sculptor to his own masterpiece, the Radcliffe Library, and his excellent statue of Dr. Radcliffe receives a puff from Gibbs in the "Bibliotheca Radcliviana," in which Rysbrack is described as "a noted Sculptor," and "the Doctor's figure in his Academic Habit" is said to be "curiously done." Modern critics, in spite of Dallaway's sneer, would probably go further, and see in it one of the best portrait statues of the century. The busts of Gibbs himself, that for the same building (dated 1726) and that afterwards at Strawberry Hill, are less exhilarating, but the statue of Locke at Christ Church often attributed to Roubiliac is an excellent work, as is the posthumous Busby at the same College. Other works at Oxford by him are the bust of the Duke of Marlborough at the Bodleian, the admirable terra-cotta bust of an unknown man dated 1741 in the Radcliffe Library, and an excellent posthumous bust of Wren at Queen's; but of the statue of Thomas Rowney intended for the Town Hall nothing is known.* An interesting portrait of Rysbrack himself, in Hogarth's Assembly of Artists, may be seen in the Ashmolean Museum. Other Oxford portraits given by Dallaway are the Balliol at Balliol; the Alfred at University, said to have been finished by Wilton; Dr. Freind; Archbishop Boulter, and (presumably) the George I. and George II. at Christ Church.

Before passing to the great mass of the monuments still to be described we may give a note of Vertue's, under date Oct. 1746, which shows us Rysbrack collaborating with other artists of his day from Hogarth downwards in their benefactions to the Foundling Hospital. "Mr. Rysbrack has finisht his bass relief for the foundling hospital representing charity, a woman embracing 4 [2] children, several others, the boys coyling a cord in ship and anchor, and the girls huswifrey and similar imployments milking the cows &c. the whole block of Marble about 5 or 6 feet long—and the sculpture finely finisht and executed is for a present his own donation to the Hospital. The Moddel of Clay of the same magnitude is admirably well done and therein shows his great skill in the plastic Art wherein as the Material is maleable, still permitts the Artist to express his mind more artfully and with greater freedom than as the labourious or durable marble." A note in the margin reads, "the three busts in marble he has done, of Rubens, Quellin and Vandyke are highly finisht and masterly done as standing proofs of his great skill." As we have seen, Vertue had some years before admired his statuettes representing the same three artists standing, and the Vandyck still survives to justify that admiration; what became of the marble busts is not known, but the bas-relief at the Foundling, here for the first time published by kind permission of the authorities, may still be seen and is one of the most delicate pieces of work standing to the credit of any sculptor of the century. The extremely low relief with its suggestion of distance beyond distance is almost worthy of comparison with the Frieze of the Parthenon.

On October 4th 1739 Vertue notes: "the Statue of his late Majesty K. George I., carved out of a block of white marble by Mr. Rysbrach near Oxford Chapple† was carried thence in order to be erected on a marble Pedestal in the Senate Room of the University of Cambridge,"‡ and on the same day "two marble busts of the King and her late Majesty Queen Caroline," also by Rysbrack, were erected in the "new library in St. James, Green Park." One "excellent" bust of Milton we have already mentioned, but an interesting note of Vertue's tells us that the sculptor's first bust of the poet was done for Mr. Thomas, Sergeant of the Tower, sold after his death to Sir Joseph Eyles for £35, bought by Auditor Benson for £40, and by him placed on the poet's monument in Westminster Abbey, "and he gave Mr. Rysbrach £20 more for the rest of the monument," as well as commissioning two other portraits of the poet, one as a young man, "Information," says Vertue, "from Speaker Onslow." He adds that from one of them "a medal was made by Mr. Tanner," which was annually presented by Benson on the poet's birthday to the author of the best poem in praise of "Paradise Lost."§

* Cf. Mrs. Poole's "Oxford Portraits," Vol. I., p. 251.

† "Mr. Rysbrack's house is in the further end of Bond Street and up across Tyburne Rode [the modern Vere Street] in Ld. Oxford's ground upon the right hand going to his Chaple." Wheatley and Cunningham's "London," under Vere Street.

‡ George I.'s gift of 30,000 volumes to the University Library ranks him high among its benefactors, and gave occasion to two famous epigrams. This statue is ascribed to Roubiliac by Horace Walpole, as also that of the "Proud" Duke of Somerset.

§ Dr. G. C. Williamson's "Catalogue of Milton Portraits," p. 124. The existence of three Milton busts is, however, unknown to Dr. Williamson, since Vertue's note here given has never been published.

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STATUE OF DR. RADCLIFFE, BY RYSBRACK, IN THE RADCLIFFE CAMERA, OXFORD.

In 1747 we have further news of the Vandyck and its companions. Vertue notes that "of Mr. Rysbrake Mr. Van Aken had bought three models most excellently done by M. Rysbrack Sculptor—and paid for them freely—one the portrait of Rubens at length—Vandyck and Quesnoy Fiamingo the sculptor. Of these three figures, molds were made and castes, at Seaven guineas the three sold." Evidently, in that age of antiquarian curiosity, Rysbrack's historic sense and his feeling for character appealed to the collectors of the day, and it is on precisely this side that his artistic appeal is still strongest. Even in a purely decorative garden work like the Sir Thomas Gresham at Stowe he studied his model (Bushnell's statue at the Royal Exchange) with care, and reproduced it with accuracy and spirit, and that the Cromwell at the House of Commons should have been ascribed both to him and to Bernini is a compliment of no common order. Such works as the model for the Marlborough monument, the Vandyck, and the Miltons are visible history, and it is singular that, while much merit has rightly been given to West for making his General Wolfe die in uniform instead of in heroic nudity, no one should have pointed out that Rysbrack, nearly fifty years earlier, was carrying out the same principle at Blenheim, though in the case of his larger works classicism, it must be confessed, sometimes got the upper hand. The same care for costume and accessories struck Vertue in the case of the Vandyck and its fellows, and one has only to compare Rysbrack's work with what the painters of his day called a Vandyck habit to see the difference.

We have already enumerated nearly one hundred works of the sculptor, and must now turn to those not as yet described.

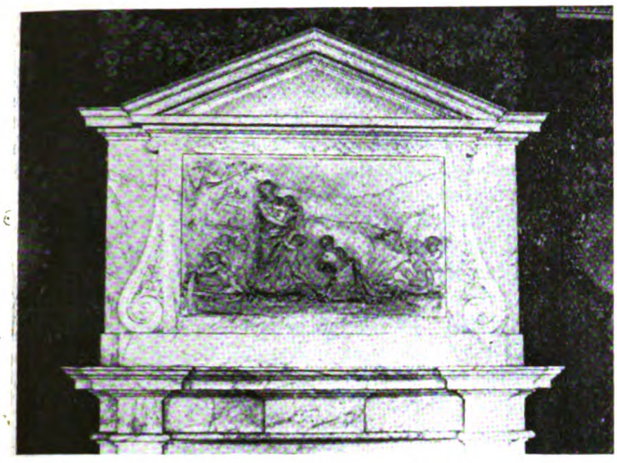
The monuments by Rysbrack in Westminster Abbey are as follows; some of them have been mentioned already:—

1. Prior
2. Newton, the drawing for which is in the British Museum
3. Earl Stanhope. ditto. ditto.
4. Mrs. Oldfield, after a design by Kent, 1720.
5. Sir Godfrey Kneller, designed by himself and executed by Rysbrack, to whom he is said to have given minute directions
6. Ben Jonson, after Gibbs' designs.
7. Nicholas Rowe.
8. John Gay, the design sometimes attributed to Adams.
9. Richard Kane, an excellent work.
10. Admiral Vernon, with an epitaph by Thomson.
11. Pedestal for the statue of Lady Walpole by Valori. (Walpole's "Short Notes of My Life, Letters" (Toynbee), I., p. xli.
12. Monument to John Holles, Duke of Newcastle (not the figure, which Walpole says, was the work of Bird), after Gibbs.

Next come three busts in the British Museum, and a mass of other work:

13-15. Sir Hans Sloane; a third example of the Duke of Marlborough; and Martin Folkes, F.S.A.
16. Statue of Sir Hans Sloane, Physick Garden; Chelsea.
17. Bust of Cromwell (? that in the House of Commons, often attributed to Bernini, but perhaps identical with that seen by Vertue in 1732).
18. Monument to Sir Hans Sloane, Chelsea Old Church.
19. Statue of the Duke of Somerset, Senate House, Cambridge.
20. Charles Duke of Somerset and his Duchess, Salisbury.
21. Lady Folkestone. Coleshill.
22. Lady Bessborough, Derby.
23-25. Henry 2nd, Henry 3rd, and Charles 4th Duke of Beaufort, Badminton. Three life-size statues.
26. John Willett, Merly House, Dorset.
27. Statue of the Hon. Henry Greville, Governor of Barbadoes, in the Town Hall there (1756).
28. Monument to Bennet, first Earl of Harborough (ob. 1732), Stapleford, Leic. (Nichols's "Leicestershire," Vol. I., pl. lxvi). The busts of the Earl's three sons over a seventeenth-century tomb may also be due to the sculptor.
29. Monument to Elizabeth, Countess of Derby, Boxgrove, Sussex. This is unsigned, and has not been hitherto attributed to Rysbrack; but if anyone will compare the delicate relief with its suggestion of distance with that in the Foundling Hospital, also reproduced here, he will be convinced that the two come from the same hand. The Countess, in semi-classical dress, is seated under an oak, to which a group of beggars presses forward, pointing towards the almshouses which she erected in the village, and which, though much disfigured (unless the sculptor's chisel has strangely idealised them) still stand there. The Countess, the heiress of the ancient seat of Halnaker near by, was a great benefactress of Boxgrove, and I am inclined to think that the neighbouring monument to her father Sir William Morley erected in 1728 and consisting of a flaming urn surmounting a fine decorative tablet, is probably also an early work of Rysbrack's. Be this as it may, the relief representing the Countess is one of the most original monuments of its time, and is especially valuable as one of the very few works of the sculptor's in this particular genre. A similar relief representing the planting of trees on a triumphal arch at Garendon Park, Leic., may, from Nichol's illustration, be also from his hand. [Vol. III., Part II., pl. cxiv.]
30. Bust of the Duke of Cumberland (1754), Holland House.
31-33. Statues of Palladio, Fiamingo, and Inigo Jones, for Chiswick House.
34. Bust of Charles I. after Bernini, for George Selwyn.
35. Viscount Bolingbroke, Lydiard Tregoze, and Petworth [Dallaway].
36. The Duke and Duchess of Argyll, Inverary.
37. Miss Stanley, Holy Rood Church, near Southampton.
38. John Sympson, Canterbury Cathedral.
39. Captain Powlett, West Grinstead.
40-41. Monuments to John Sigismund Trafford, of Dunstan Hall, St. Mary's, Tidd, and his son Sigismund (Nichols's "Lit. Anec.," VI., p. 116.)
42-45. Monuments to the Duppa family, Hollingbourne, Kent. (Information kindly sent by R. D. D'Uphaugh, Esq.)
44. Busts of Archdeacon Palmer, and Thomas Palmer, Ecton, Northants. (Information kindly sent by Rev. Canon Jephson.)
45. Statue of Flora, for Stourhead.
46. Statue of Hercules, ibid. According to Vertue, this highly praised work was executed in 1741, when, owing to Scheemaker's success with the Shakespeare monument, Rysbrack "found himself somewhat at leisure, business not being so brisk as had been with him for yeares before." "At least seaven or eight different men" supplied the models for the parts of this statue which, adds Vertue, "altogether is surely an excellent model for truth, correctness, and excelency of stile

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"CHARITY."
Relief presented to the Foundling Hospital by RYSBRACK.
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nearely comparable to the ancient statue of Hercules [Farnese]. So much for the honour of England." It was bought by Sir Richard Hoare to be set up at Stourhead in 1757.

47. Darius in the Tent of Alexander, in the hall at Stowe, a crowded and unsatisfactory composition, the figures partly in relief, partly in the round.
48. A fine piece of alto-relievo in statuary marble, after the antique over the chimney of the Marble Parlour at Houghton ("Aedes Walpolianæ").
49. "The figures over the great door, and the boys over the lesser doors," in the hall at Houghton. Ibid.
50. Statue of George II. dated 1735, Greenwich Hospital.

When we add to these the monuments already mentioned, viz., the 68 busts and statues given by Vertue in the list of 1732, the busts and statues at Oxford, the decorative works at Stowe and Richmond, the great Marlborough monument and other works at Blenheim, the busts for the Royal Library, the George I. and II. for the Royal Exchange, the William III., the Soane Statuette, and the other works known to us from the Sale Catalogues which have still to be mentioned, we get a total which is staggering in its variety and excellence. Even so, the list is probably very imperfect.

Before touching on the drawings and Sale Catalogues we may mention that Rysbrack's work at Houghton, his "portrait bust of Sir Robert Walpole very much like him and approved of" from which Natter executed a well-known medal, and his pedestal for the statue of Lady Walpole are not the only instances of his connection with that family. When Horace Walpole received "four barrels of statues" from Italy in January 1745, the "model of my statue" arrived "broken into ten thousand bits, and the Ganymede short in two, besides some of the fingers quite reduced to powder, which to me seemed irrecoverably smashed." He called in Rysbrack's aid, however, and had the pleasure of seeing everything put to rights and his statues as good as ever.

A few drawings "in the true Italian taste" already referred to are in the British Museum, and represent an Apostle (?) and two admirable studies for the imaginative picture of the Three Witches, afterwards finely engraved by Sherwin. Where the original of the Time is, which was engraved by Basire in 1768, is unknown, but the stately figure seated on an altar and holding up a dial proves the high imagination of the sculptor. There are also two studies of the monuments of Newton and Stanhope, the former of which is presumably a re-drawing of Kent's design. Other drawings may be seen in a notebook in the Soane Museum, and the model for the Locke is at South Kensington.

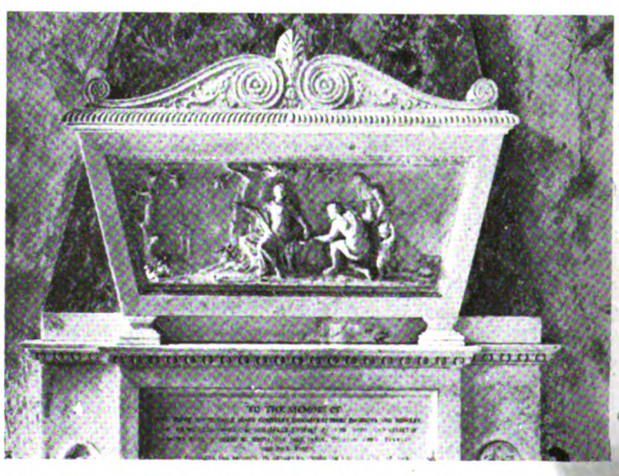
As in the case of Scheemaker, we will conclude with the evidence of the Sale Catalogues:—

A.

The first of these, dated April 20, 1765, mentions a mass of decorative objects from his yard, 25 tables of variously coloured marbles; 9 Vases and 3 Statuary Urns; 6 marble medallions, of Inigo Jones, Nicholas Stone, George I. (2), George II., and a Medusa after the antique; marble busts of Ripley, Sir Francis Bland, Dr. King of Oxford and Queen Anne; Terracotta busts of Charles Duke of Somerset, George II., Fiamingo and Rubens; Hercules, a study for the Hoare statue, a bas-relief for chimney pieces for Lord Hopetoun and two for Lord Onslow; a complete chimney piece and pilasters; "A Basso-Relievo, representing the bringing of Riches from the four Parts of the World to Britannia, done for a Chimney piece in the East-India House," a subject already treated by Scheemaker at Stowe; several bronzes, including Venus, Vulcan and Cupid, a bas-relief; busts of Milton and Newton, and figures of the Gladiator and Hercules delivering Prometheus from the Vulture; a Genius extinguishing a torch on a skull; figures of a water nymph and a Reposing Hercules; and several studies in marble after Fiamingo and the antique.

B.

The second Sale Catalogue—the sale took place on January 24 and 25, 1766—describes the sculptor as "Mr. Michael Rysbrack, of Vere Street, near Oxford Chapel, Statuary (who is retiring from Business)." This was a more important sale than the first, and included originals by Bernini and Fiamingo as well as pedestals, vases, &c., from the yard in Vere Street, and a remarkable number of models for his larger monuments. There were six medallions, Gay, Walpole, George I., and others; a model of a cow; a Hercules and Deïanira; figures of History and Prudence; George I. and Queen Anne, Newton and a Bishop (? Dr. Barnard of Raphoe); the models of Lord Burlington's Inigo Jones and Palladio at Chiswick, and among the identifiable monuments the sketches for the Duke and Duchess of Kent; the George II. and Queen Caroline at Stowe; the three Dukes of Beaufort; Sir Hans Sloane; Dr. Radcliffe (2); Mr. Willet [t]; the Duke of Somerset; Sir John Dutton, leaning on an urn; Mr. Knight and his Lady; two figures and an urn for a monument for the Family of Sir Nathaniel Curzon; "the sitting figure of Mrs. Rowe, for a monument," the laying figure [*sic*] of Lord Chief Baron Ward; a Group of William Young, Esq., and his Lady; "Lord Foley, his Lady and Child and other figures for a monument," the original of which, as we have said, was seen by Vertue; "a model for one of the Saxon gods," obviously that at Stowe; and the figures of Neptune and Britannia, Peace and Plenty, designed for two pediments at Houghton. Above all there were "two of the trophies of the Duke of Marlborough's monument," and other models, and by the curious infelicity which always besets the auctioneer, separated from the trophies to which they belonged, that "sketch of a basso-relievo representing *The Taking of Count Tallard* prisoner, by his *Grace* the *Duke* of *Marlborough*; for his *Monument* at *Blenheim*," which, as already said, is one of the glories of the Soane Museum, and was, like the



MONUMENT TO THE COUNTESS OF DERBY, BOXGROVE SUSSEX. By RYSBRACK.

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Vandyck, bought by Sir John Soane from the sale of Sir William Chambers's assistant Stevens, as Mr. A. T. Bolton, F.S.A., kindly informs me. One or two small originals by Bernini and Fiamingo were also included in the sale.

In all, this sale included 130 terra-cottas by Rysbrack, some after the antique and Fiamingo, but the enormous majority originals by himself, and the catalogue is of the highest value in adding to our knowledge of the sepulchral art of the sculptor.

Later still are the two sales of March, 1770, which took place after his death on Jan. 8th, and which included other works and models of the same classes of the former. Some of the connoisseurs who attended them were cleverly sketched by Paul Sandby.

The Catalogue of the Nollekens Sale of July 4, 1823, included two of Rysbrack's works, a Sibyl and a Model for a Monument. It is the more curious therefore that his name never occurs in J. T. Smith's biography of the later sculptor, although a brief life of Rysbrack is appended to that work. Rysbrack seems to have been personally little known, or at least, so gentle and retiring as to give no handle to gossip itself. His pupils are also obscure, although Delvaux was his friend and fellow-worker; and no bust or monument commemorates him at Marylebone, where he lies near his first employer Gibbs; but he who had erected more busts and monuments to his contemporaries than any other sculptor, could have no nobler epitaph than Walpole's, "the best sculptor that has appeared in these islands since Le Soeur."

NOTE.—Probably no one would have been more annoyed than Walpole himself by the quotation appended to his work by Dallaway from the wholly unsympathetic Flaxman, "Rysbrack and Roubiliac spread the popularity of this taste [for Bernini's work] in England; but as the first of these was a mere workman, too insipid to give pleasure, and too dull to offend greatly, we shall dismiss him without further notice." If the reader will take the trouble to look at the bas-relief of the Surrender of Marshall Tallard, at the Vandyck, the Radcliffe, the Locke, the Charity, and the exquisite weeping cherubs upon the tomb of Sir Isaac Newton, he will be in a position to judge whether Vertue and Walpole or Flaxman and Dallaway have the best right to speak of Rysbrack's work. Moreover there is less of Bernini in Rysbrack, who had never been in Italy, than in most sculptors of the century from 1660-1760, as Bushnell at one end of the period and Roubiliac at the other would alone show, so that the criticism has not even the merit of historical accuracy; but Flaxman was one of the leaders of the classical reaction, and as such was as incapable of doing justice to his predecessors as Pugin of appreciating the works of Wren.

(*To be continued.*)

For preceding articles of this series see:—Introductory Article, July 1; Nicholas Stone (1587-1647), July 8; Edward Pierce (ob. 1698), Sept. 2; Caius Gabriel Cibber (1630-1700), Sept. 16; Grinling Gibbons (1648-1721), Sept. 30; John Bushnell (d. 1701), Oct. 7; Francis Bird (1667-1731), Oct. 21; Peter Scheemaker (1690-1771?), Dec. 9; Peter Scheemaker (*cont.*), Feb. 10; John Michael Rysbrack (1693-1770), Mar. 3.

According to the "Journée Industriello" of recent date, forwarded to the Department of Overseas Trade by the Commercial Secretary at Paris, Monsieur Otto, Professor at the Sorbonne, has invented a process for seasoning timber by the use of ozone. The process is said to give the same result in about twenty days as would naturally be obtained in the course of several years. The wood is subjected to the action of a current of air containing a certain percentage of ozone. A micrographic examination made by the laboratory of the "Conservatoire des Arts et Metiers" is reported to show that samples of oak and walnut which had been treated by the Otto process, show the same characteristics as seasoned wood. The treatment does not change the colour of the wood. The Otto process is being worked by a French Company, which has constructed works at Seregno, near Milan, and will shortly build new works in the neighbourhood of Paris.

Claim Against Architects Fails.

Mr. Justice Coleridge had before him, in the King's Bench Division on Wednesday and Thursday, an action by James Allan & Son, Ltd., George Street, Glasgow, against the Tudor Chocolate Co., of Leamington Spa, and alternately against Messrs. Baily, Palmer & Shipwright, architects, of Great James Street, Bedford Row. Plaintiffs claimed £261 10s. 3d. for steel which they had supplied for the extension of the chocolate factory of the Tudor Chocolate Co. at Leamington Spa. The Tudor Co. had repudiated the contract by refusing to accept delivery. Messrs. Baily, Palmer & Shipwright were architects for the extension, and they had given the order for the steel. The Tudor Co. put in a defence that the architects had no authority to act as their agents in the matter.

Messrs. Baily, Palmer & Shipwright, on the other hand, said that they were authorised by the Tudor Co. to make the contract on their behalf, and that it was only after the scheme for extending the factory had been abandoned that the Tudor Co. repudiated the contract.

Mr. Leck, K.C., for plaintiffs, said the dispute was really between the two defendants. The only issue was whether the architects had authority, and plaintiffs were alleging they had authority.

Mr. Malcolm Hilbery, for the architects, called Mr. Harold Baily, F.R.I.B.A. and a Fellow of the Sanitary Institute, who stated that he was now inspecting surveyor for North Wales under the Ministry of Health. He detailed what occurred at interviews with the head of the Tudor Co., who, he said, authorised him to procure the steel for the proposed extension of the factory.

His Lordship entered judgment for plaintiffs for £215 2s. 3d., with costs against the defendants, the Tudor Chocolate Co., and judgment was entered for the other defendants, Messrs. Baily, Palmer & Shipwright, with costs, plaintiffs to be at liberty to add the costs paid to Messrs. Baily, Palmer & Co. to the costs recoverable from the other defendants.

A Birmingham Shop Front.

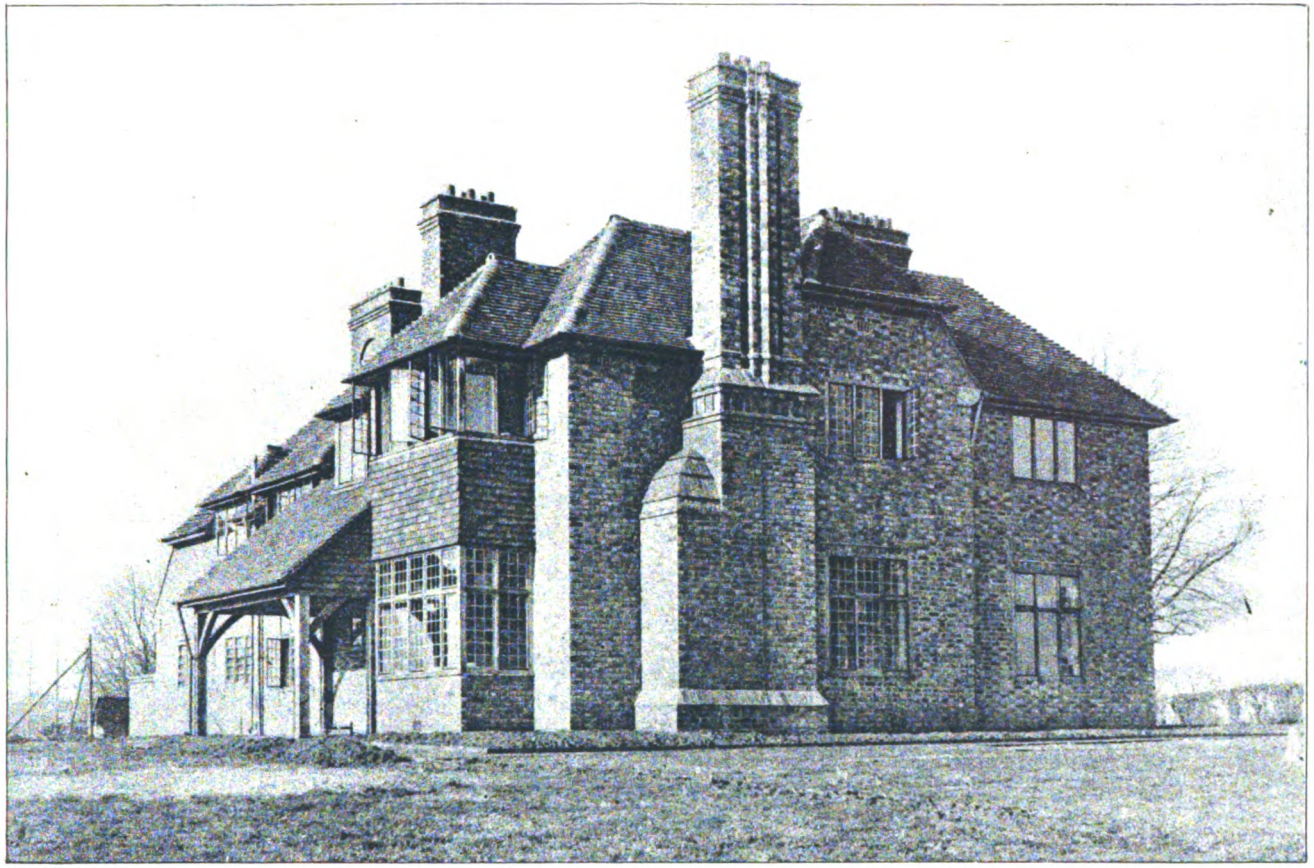
Judgment has been given in a County Court case at Birmingham in respect to a claim brought by Messrs. Harris & Sheldon, shop-fitting manufacturers, against Sarsons, Ltd The plaintiffs' case was that they prepared designs for the shop front for which they were to tender, and that the work was given to another firm, who practically adapted the design made by Messrs. Harris & Sheldon. We are glad that the plaintiffs won their action, for we know of too many cases where the work of one man is used by another without payment. The case would not have arisen had the defendants taken the proper course of securing an architect's design at the outset and asked for competitive tenders for its execution; but when a contracting firm supplies designs, which is an event of frequent occurrence, it should be clear that the production of such designs costs money and takes time which should be paid for, and which, if the firm's estimate is accepted, is, in fact, paid for, since their overhead charges are increased by the designers' salaries. All of which goes to prove that it may be equally cheap and more satisfactory to pay an architect at the outset.

Major Glyn (C.U., Clackmannan and East Stirlingshire) recently asked the Secretary for Scotland whether he has considered the advisability of encouraging the building of houses by private enterprise by means of obtaining Treasury sanction for the exemption of the builder and the lender of money used in the construction of houses from income-tax at the rate of 6s. in the pound upon all houses built during the forthcoming five years, the rentals of which would be under £30 per annum, and the type of house of a size containing from two apartments with bathroom built in tenements not exceeding four storeys in height. The Secretary for Scotland wrote in reply: Proposals of this nature have been brought to my notice, and are now receiving my consideration.

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SOUTH-EAST FRONT.



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SOUTH-WEST FRONT.



NORTH-WEST FRONT.

"INK-PHOTO." SPRAGUE-HAYCOCK (PRINTERS) LTD 69 & 70, DEAN STREET, LONDON, W.1.

"WICKHAM PLACE." HURSTPIERPOINT, SUSSEX.

H. BULKELEY CRESWELL. F.R.I.B.A., ARCHITECT.

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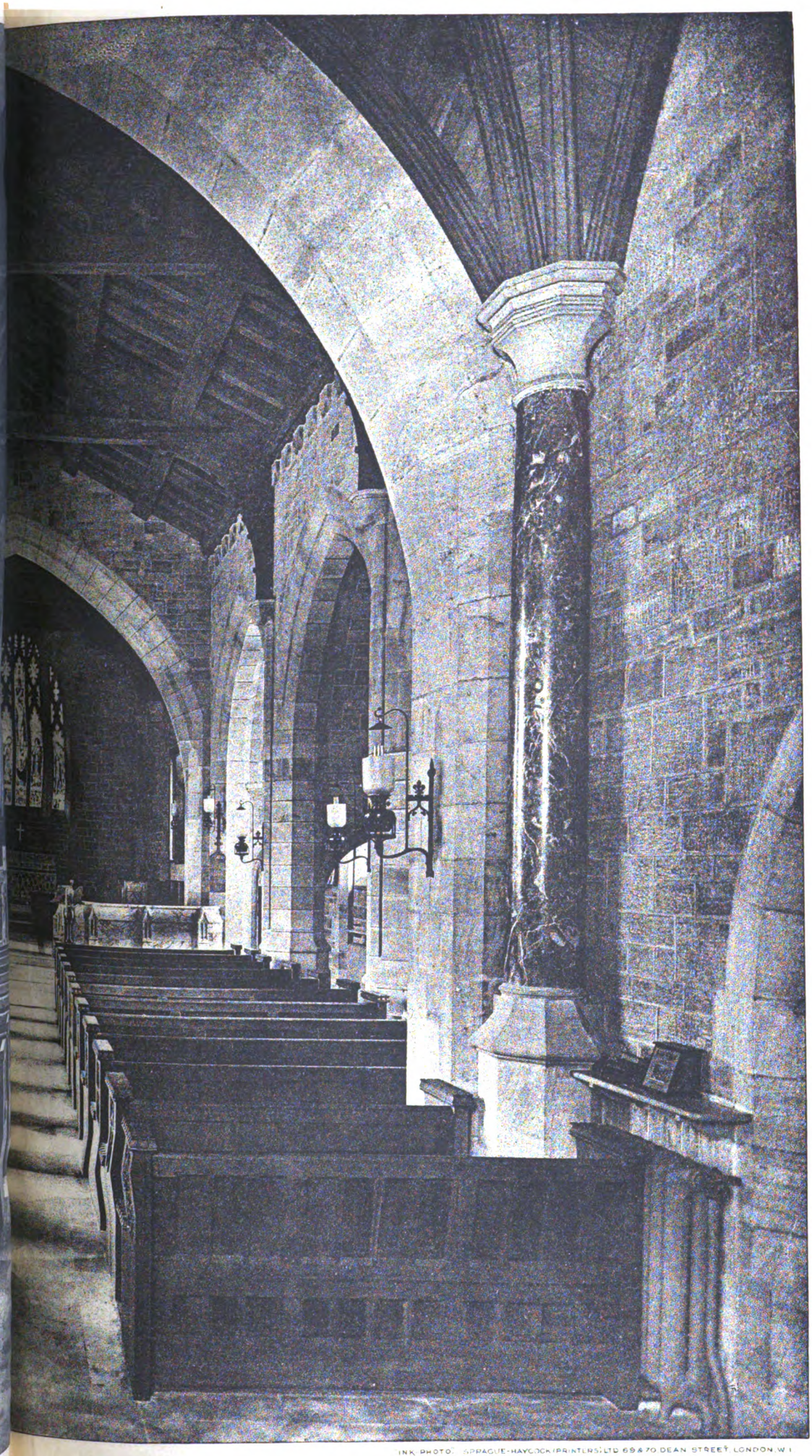
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CHURCH AT W
MESSRS. CONNON & CH

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...SLEY, NEAR RIPON.

...LEY, F.F.R.I.B.A., ARCHITECTS.

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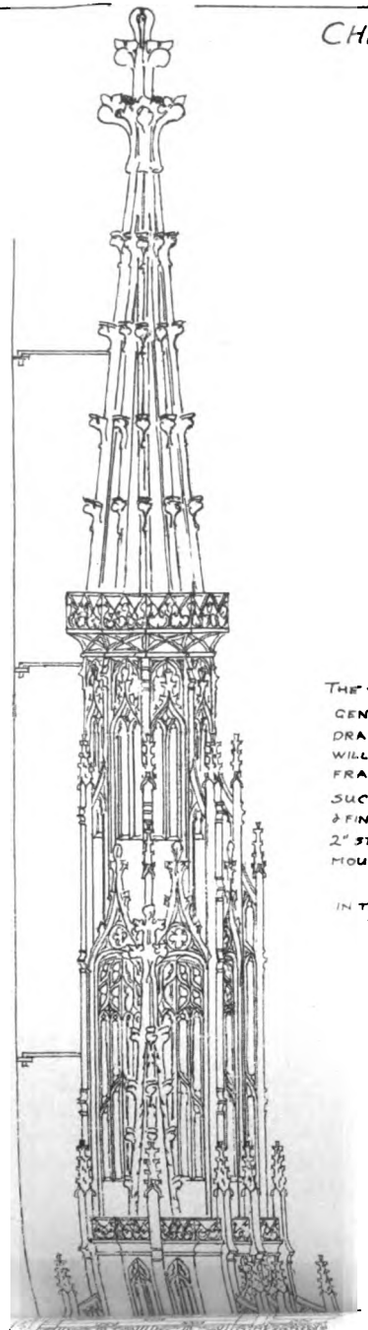
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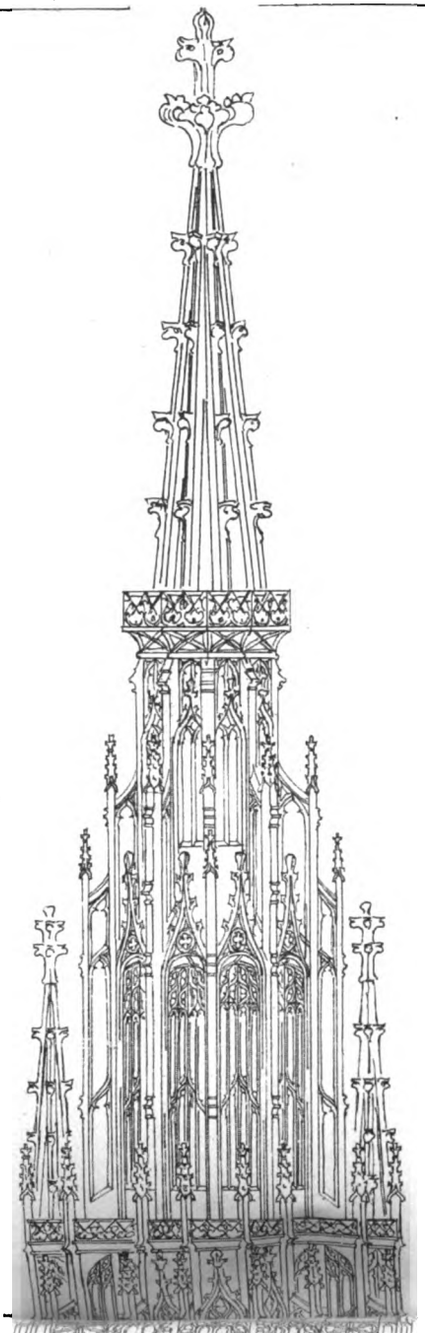
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CHELMSFORD CATHEDRAL

BISHOPS THRONE

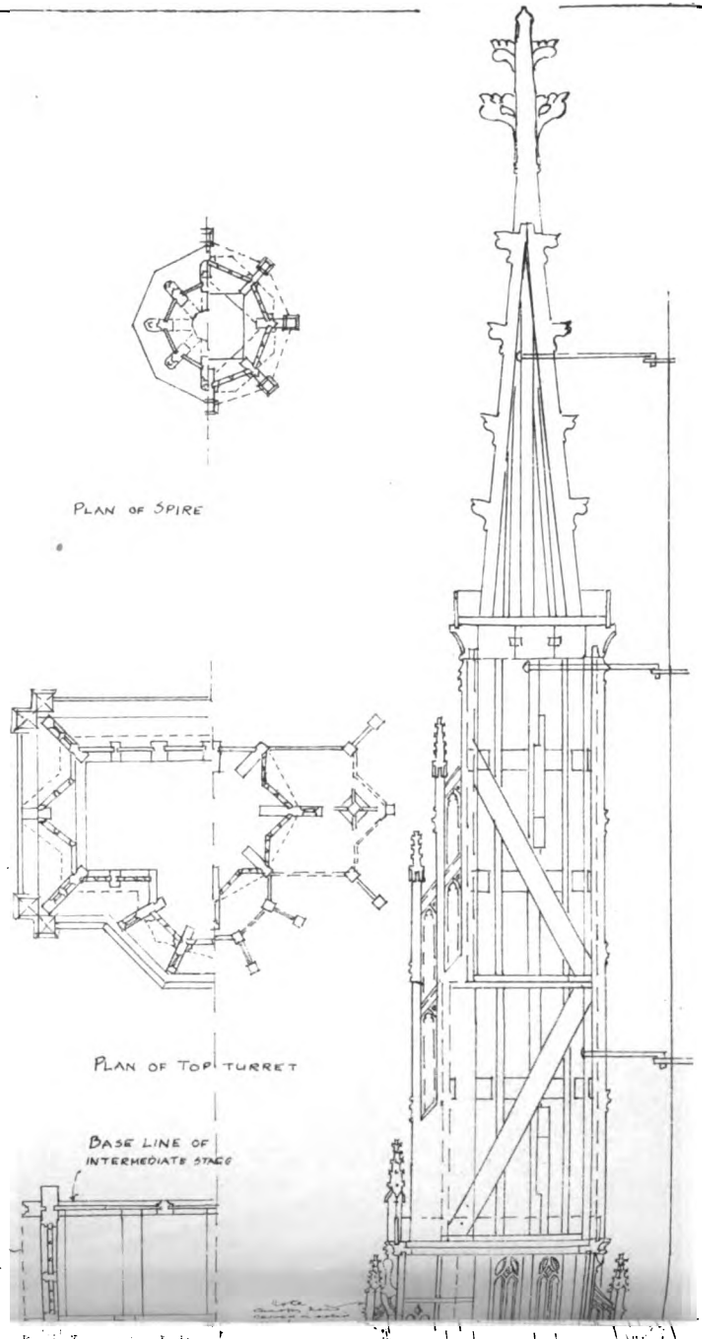
CHARLES A NICHOLSON
2 NEW SQUARE W.C.
FEB 1922.





PLAN OF SPIRE

PLAN OF TOP TURRET



TOP OF THIRD STAGE
FOR CONSTRUCTION

THE WHOLE TO BE IN BEST ENGLISH OAK. THE GENERAL CONSTRUCTION IS INDICATED ON THIS DRAWING. THE PANELLING WORK GENERALLY WILL BE IN 1" AND UNDER STUFF. THE FRAMEWORK OF LOWER STAGE WILL BE IN 2" & SUCH PORTIONS AS THE SOLID CANOPIES, THE RIBS & FINIALS OF SPIRE & THE PINNACLE TOPS WILL BE IN 2" STUFF & OVER. THE DESK ENDS 3" AND THE MOULDED CURBS & PLATFORM AS SHOWN

ALL CARVING TO BE OF THE TYPE USED IN THE MANCHESTER STALL CANOPIES & THRONE. THE OAK WORK TO BE FUMED & LEFT PLAIN

EACH STAGE OF THE CANOPY TO BE FRAMED UP INDEPENDENTLY & THE WHOLE TO BE BOLTED TOGETHER FOR CONVENIENCE IN FIXING IN THE PRESENT CHANCEL & ULTIMATE REFIXING IN THE PERMANENT CHOIR

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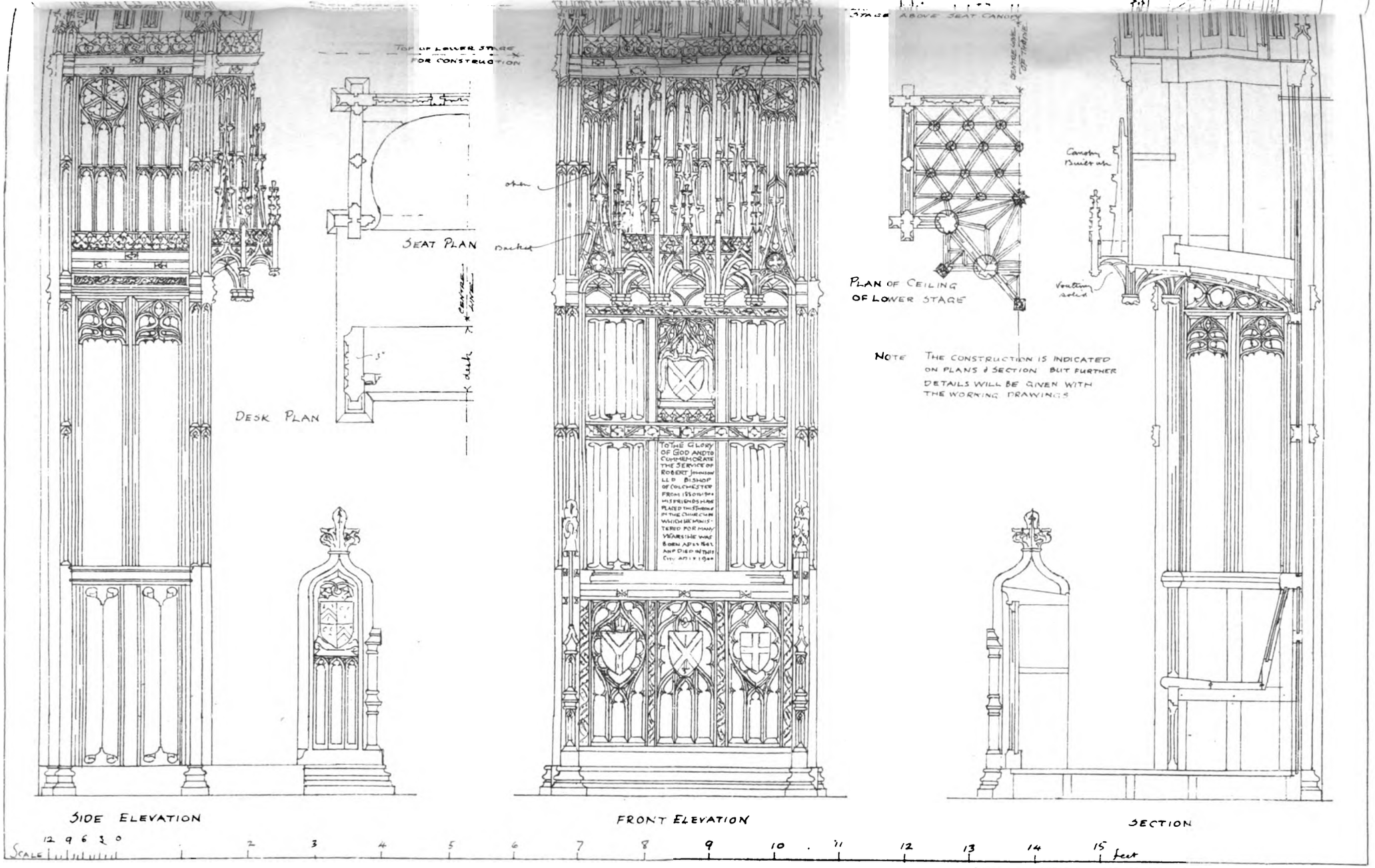


PHOTO LITHO SPRAGUE HAYCOCK (PRINTERS) LTD 89 & 90 DEAN STREET, LONDON, W 1.

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Correspondence.

The Height of Buildings.

To the Editor of THE ARCHITECT.

SIR,—In your leading article on this subject in THE ARCHITECT of March 17 appears the following paragraph:

"It is a curious fact that Mr. Delissa Joseph, who has so energetically championed the cause of higher buildings, should have been one of the opponents of the very tentative and moderate proposals of Mr. Henry T. Hare, which had for their object the prevention of the future acquisition of rights of ancient lights, for it is the law of ancient lights more than anything else which hampers the full and adequate use of building sites."

In view of this statement, I have looked up the verbatim report published in the "Journal" of the Royal Institute of British Architects of December, 1918, of the discussion which took place on November 18, 1918, when the late Mr. H. T. Hare brought forward a short Draft Bill having for its object the prevention of the acquirement of fresh ancient lights; when, in moving that the Draft Bill be referred back to the Council for further consideration, I submitted the following observations:—

"The proposal to check the acquirement of new ancient lights must be accompanied by the provision of other safeguards. If there were no control as between adjoining ownerships, no one could be certain, after having developed his own plot to what seemed the best advantage, that his property would not be permanently injured when his neighbour proceeded to develop his adjoining plot. Machinery should be incorporated in the Bill which would ensure the maintenance of some reasonable accommodation between neighbouring properties. This might possibly be attained by the establishment of a Board of Referees, on the lines of the Dean of Guild Court in Scotland, before whom plans for development should be placed, and who should decide between neighbours as to what mutual provision should be made for light and air."

The late Mr. H. T. Hare having pointed out that an enlargement of the Bill, in a sense proposed by me, would endanger the Bill itself, I withdrew my suggestion, but apparently nothing has been attained in the matter since that date.

From the above you will observe that I did not oppose Mr. Hare's Bill, but advocated the enlargement of its scope so that it might be the means of ensuring not merely the non-acquirement of new ancient lights, but the adjustment of existing ancient lights by an independent tribunal.

—Yours, &c., DELISSA JOSEPH, F.R.I.B.A.

38 Coleman Street, E.C.
March 28, 1922.

[We agree that we attributed views to Mr. Delissa Joseph which he has shown to be erroneous, but which are accounted for by our general impression at the time which was that he was opposed to the proposals brought forward by Mr. Hare, proposals which we were inclined to criticise as being too partial and incomplete in their character.—ED.]

Unification and Registration.

To the Editor of THE ARCHITECT.

SIR,—Mr. Buckland complains that the views of the Unification Committee have been misrepresented by us. Now for the facts. If Mr. Buckland will refer to the "Journal" for May 28, 1921, he will find a report of the meeting in question.

Mr. Gibson said: "The one scheme was that all architects who practised architecture or earned their living by it should become members of the Royal Institute."

Mr. McArthur Butler said: "Scheme A, which was the bringing of all architects in the Kingdom into the R.I.B.A. That means what it said. Even if they had all the architects of the Kingdom in the Institute," &c.

The Chairman said: "The only question before us at the moment is the principle of bringing all the architects in the United Kingdom into the Institute."

Sir Charles Ruthen said "He took it that the idea of Unification was that all architects should belong to the Royal Institute . . . they would all be members of the Royal Institute. . . The Allied Societies would not be affected by Unification except in so far that those of their members who were not now members of the Institute would become so."

Mr. G. C. Lawrence said: "I understand Mr. Corlette's motion to mean that this meeting is to say that it is much to be desired that all architects should be members of one body—the Royal Institute."

The Chairman then submitted Major Corlette's resolution to admit "all the architects of the United Kingdom into membership of the R.I.B.A.," and it was carried.

We submit we have not misrepresented those gentlemen; we have simply given them credit for having sufficient intelligence to accurately express their thoughts in words.

Such a scheme as explained above could have claimed to be called one for Unification. But it must soon have been apparent to the promoters of it that the R.I.B.A. would never sanction such a proposal; so they "hedged," and stated that "all the architects" only meant all the qualified or selected or approved architects, and no others, and to call such a scheme Unification is nothing less than a piece of impudence and an insult to our intelligence.

The scheme of the Unification and Registration Committee was submitted to the Parliamentary agents by us; it was explained at length, and they were pressed for an opinion as to the chance of our obtaining registration if we carried out the scheme, with the well known result. We have always maintained that the opinion of architects on this technical matter is not worth considering, and for architects to say the scheme is a "first step" to Registration in order to lead men to think that if we suspended our examination system and admitted men in large numbers that it would lead to Registration is not worthy of our Council or any member of it.

With regard to obtaining Registration, we gave an alternative scheme on page 6 of the pamphlet issued by the League.

Thank goodness members of the Institute are beginning to think and act for themselves, and not simply submit to any proposal that may be passed by a majority of the Council. We hope Mr. Buckland and his friends will write to you again; that type of letter is just what we want.—Yours, &c.,

ALFRED W. S. CROSS,
H. D. SEARLES-WOOD,
Vice-Presidents, R.I.B.A.
GEORGE HUBBARD,
SYDNEY PERKS,
Hon. Secs.,
R.I.B.A. Defence League.

Houses for £400.

To the Editor of THE ARCHITECT.

SIR,—In a statement widely circulated in the Press Sir Kingsley Wood, M.P., is reported to have said at a meeting which he addressed on March 29 that the cost per house had been reduced by one-half, and that tenders were being received at the Ministry of Health at less than £400 for a house of three bedrooms, parlour, and kitchen, and that it was expected that tenders would be still lower.

Will Sir Kingsley Wood go a little further, and state where these houses are to be erected, of what material they are to be built and by whom, and whether they conform in all respects with the regulations of the Ministry of Health for the houses of the working classes?

My reason for asking this question is that architects' potential clients, reading the statement referred to, believe that it applies to the whole country, whereas in some districts, and probably in many, it is, I suggest, impossible to get houses of that accommodation properly built at the price quoted by Sir Kingsley Wood.—Yours, &c.,

C. MCARTHUR BUTLER,
Secretary.

The Society of Architects,
28 Bedford Square, W.C. 1,
March 31, 1922.

Registration and the Rights of Associates.

To the Editor of THE ARCHITECT.

SIR,—May I ask for the use of a little space in order to refer to the letter on the above subject signed by the Officers of the Defence League and to re-assure the Associates of the Institute as to their power of voting on the proposals of the Unification Committee. The letter has stated that "if the scheme of the Unification and Registration Committee were submitted to the full body of the Institute for approval, no Associate would have the right to vote, and Fellows alone would decide it." This statement is altogether incorrect. The matter before the Meeting would be the proposals for a new Charter, and the Associates would have full power of voting on it. The By-laws would follow later, and they would have to come within the four walls of the new Charter: this Charter would almost certainly provide for

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Associates to have the power to vote on By-laws and thereby remove their only present disability.

The Associates held and exercised in 1907 the power of voting on the Charter, and they were exercising that power in 1914, when the war caused the Charter proposals to be suspended.

There is not the smallest need to put the Royal Institute to the expense of calling and the members to the trouble of attending a Special General Meeting, because the Council have already decided and have announced, long ago, the fact that any new Charter proposals that they may put forward will include the grant to the Associates of full power of voting on By-laws (see R.I.B.A. Journal, December 6, 1913). This principle was adopted at a general meeting which followed.

It is perhaps too much to expect that the Officers of the Defence League should remember these facts before they make unguarded statements to the Press, but I cannot help feeling that those of them who were members of the Council at the time the action to which I refer was taken should verify their references before they spread needless alarm among the members of the Associate Class.—Yours, &c.,

ARTHUR KEEN,
Hon. Secretary.

Royal Institute of British Architects,
9 Conduit Street, Regent Street, W. 1.
March 30, 1922.

The "Architect" Fifty Years Ago.

APRIL 6, 1872.

ADELPHI TERRACE.

The Adelphi Terrace seems to be doomed. This pet project of the brothers Adam, on which much of their special style of architectural design was expended, has come at last under the severe hand of a London magistrate, on the plea of constructional insecurity. It is not a little odd that buildings which seem to have stood securely for one hundred years, and which belong to a date when brick and mortar were guiltless of most of the scamping slop-work which is the too general quality of our present speculative building schemes, should thus suddenly and abruptly be brought under the condemnation of the district and official surveyors. Unless we assume the existence of some *recent* cause of disturbance to the foundations, it is difficult to explain the sudden alarm which has led to the summary ejectment of tenants occupying houses in one of which Garrick lived, and which the most of us have always regarded as well-to-do, substantial structures. It is not unlikely that the catacomb-like system of piers and arches which carry these houses may either have been disturbed in themselves, or (what would amount to the same result) their foundations and the substrata outside may have been affected by the works of the Embankment Railway in front of the Terrace. The magisterial enquiry into the present condition of these residences has been made public to some extent, and reveals the proverbial differences of the doctors or professionals, who were fairly matched, however, in regard to numbers—two architects being prepared to stand by the sufficient stability of the houses, while another two considered them too unsafe for occupation. The evidence of these gentlemen is a little instructive in such a case; because if district surveyors do their duty as they are presumed to do, we shall have many more police cases like this Adelphi Terrace one raised in the interest of public safety. The solicitor for the property in the present case represents the marks of dilapidation as being no more serious now than they were ten years ago, and then remarks —whether correctly or not we have no means of knowing—that "the district surveyor had only recently seen them." Mr. Driver, the surveyor of the estate, thought the cracks might have got a little larger, but "there was no danger." Mr. Scurry, architect and surveyor, comes forward to represent the intrepid view of the case, for he has undertaken the "delicate operation" of keeping the building up by needless propping and repairing of the piers. Here occurs the whole essence of the case:—Mr. Scurry is asked if he thinks it perfectly safe for the inhabitants to remain in the houses while the "delicate operation" is going on? and Mr. Scurry replies, with some *naïveté*, "Certainly, for he wouldn't work there if there existed any danger of the house falling." This certainly does appear to be a discreet, if self-evident, view of the matter; and it seems not a little hard on the "hundred men" whom Mr. Hayward set to work on Sunday underneath buildings which are now pronounced unsafe for their occupants to sleep in! If the tenants overhead were unsafe, what was to become of the workmen? The ejectment process is, to that extent at least, rather illogical. But we shall probably hear more as to the real causes which have disturbed the security of Adelphi Terrace, and make our comments on these at the proper time.

Alundum Safety Tiles.

There has been in use for some six years in the United States, and under conditions which afforded the most stringent practical tests, a practically non-wearing and slip-proof surface for floors, stair-treads, ramps, &c., where foot traffic is heavy. It is known as the "Alundum Safety Tile." As it is new to this country it may be well to give here a brief explanation. "Alundum" is the trade mark for a hard, tough, sharp abrasive alumina grain, artificially produced in an electric furnace, which after bonding with a ceramic clay mixture is fused at a high temperature in kilns into the required shapes. It is really an adaptation to constructional purposes of the material used for wheels for grinding steel and other metals. The remarkable qualities of the material were strikingly exemplified in an exhaustive series of laboratory tests carried out in 1918 at Columbia University, New York, for the manufacturers, the Norton Company, of Worcester, Massachusetts. Very baldly we may say that the average tensile strength was 2,138 lb. per square inch; the average compressive strength was 15,373 lb. per square inch, and the average transverse strength as indicated by the modulus of rupture was 5,404 lb. per square inch. In a series of toughness tests, i.e., the resistance offered to fracture under impact, Alundum Safety Tile came just below trap rock, and well above sandstone, granite, limestone, and marble. Their results of a fire test indicated a tendency to crack at a temperature of about 700 degrees Fahrenheit; no further effects were noted up to 1,700 degrees Fahrenheit. The report concludes as follows: "The physical properties of Alundum Tile material as determined by the foregoing tests are decidedly favourable for its intended use as a stair-tread material."

Since 1918 the "Alundum Safety Tile" has been repeatedly subjected to the more convincing test of practical use. For instance, a photograph of a short staircase in a New York subway station shows that the thirty million passengers who passed over the tiled treads have failed to produce any sign of real wear. Not only is it almost everlasting, but its non-slipping qualities give it a very special value for use in connection with machine plant, as well as in those places where the public most do congregate, such as public buildings, factories, department stores, and schools. Its slip-proof effectiveness is unimpaired by wear, or the presence of grease, oil, rain, or dirt.

The slipping hazard of tile floors may be reduced by combining tiles of any type or colour with "Alundum Safety Tile." Some very effective patterns are possible, as it is made in various sizes and colours for such purposes. Aggregates for terrazzo, made of the same material and by the same process as Alundum Safety Tile, offer a means of permanently covering floors, corridors, and concourses safely and economically. As a means of creating a slip-proof and lasting floor surface of varied design the advantages of Alundum aggregates are unsurpassed.

The agents for the Alundum Safety Tile in this country are Chas. Churchill & Company, Limited, 15 Leonard Street, City Road, London, E.C.

The value of buildings in 141 cities in the United States for which permits for erection were granted last month totalled over £24,500,000, an increase of sixty-six per cent. as compared with February, 1921.

Arbroath Infirmary directors have decided to acquire a site adjacent to the infirmary on which to erect a home for the nursing staff at an estimated cost of nearly £4,000, provided that the necessary funds can be raised.

The Salford Corporation have appointed a special committee to report upon certain recommendations of the Electricity Committee that Mr. J. A. Robertson, the borough electrical engineer, who has resigned his position, should be retained to supervise the construction of the proposed new electricity generating station at Agecroft at a fee of £14,000, that for five years Mr. Robertson should be appointed consulting engineer in connection with the existing undertaking, with supervision and control of the staff, at a retaining fee of £500 a year.

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The Building Trades Exhibition at Olympia.—I.

On Tuesday next, the 11th inst., at noon, Mr. Paul Waterhouse, M.A. F.S.A., President of the Royal Institute of British Architects, will formally open the Building Trades Exhibition at Olympia. This completes a series of three held annually. In future years, beginning with 1924, they will again be a biennial fixture. Mr. H. Greville Montgomery is in the happy position of being able to say that every available inch of floor space has been allotted, and that every single exhibit is directly connected with the building industry.

The Architects' Welcome Club and the social functions connected with it will be under the management of the Royal Institute of British Architects, The Society of Architects and the Architectural Association. The Prince's Rooms at Olympia will be equipped as the Architects' Welcome Club, where newspapers and technical journals will be available for reference, and light refreshments will be obtainable at tariff charges. There will also be a Presidents' room, and an inquiry office where an official will be in attendance daily.

As usual there will be meetings of various institutions and societies, and a series of popular lectures. The following is a list of the meetings and conferences already arranged.

Tuesday, April 11.—Official opening. 12 noon.

Wednesday, April 12.—The Junior Institution of Engineers. 5 p.m.

Tuesday, April 18.—Conference, Concrete Institute: (*a*) Training the Concretor; (*b*) Recent Developments in the Industry. By Mr. E. Fiander Etchells, A.M.Inst.C.E. 5.30 p.m.

Wednesday, April 19.—Royal Sanitary Institute. Conference, Concrete Institute: (*a*) Concrete Roads; (*b*) Use of Reinforced Concrete in Highway Bridges. By Dr. Oscar Faber, O.B.E. 5.30 p.m. Lecture: "Old St. Paul's and other Cathedrals." By Herbert A. Cox. Chairman: Sir Lawrence Weaver, K.B.E. 6.30 p.m.

Thursday, April 20.—Conference of Municipal Engineers. 3 p.m. Conference, Concrete Institute: "What Life can be assigned to Works of Reinforced Concrete for the Purpose of Government Loans," by Mr. G. C. Workman, M.S.E. 5.30 p.m. Lecture: "The Englishman's House: A Talk to People who know nothing of Architecture." By Nathaniel Lloyd, O.B.E. Chairman: The Rt. Hon. Lord Leverhulme. 6 p.m.

Friday, April 21.—Architects' Welcome Club Reception. 3 p.m. Conference, Concrete Institute: (*a*) Concrete Block Building; (*b*) Reinforced Floors; (*c*) Use of Pré-cast Work in Building Structures. By Mr. E. S. Andrews, B.Sc. 5.30 p.m. Architects' Welcome Club Banquet. 7 p.m. Architects' Ball and Revel. 9 p.m.

Saturday, April 22.—Institution of Sanitary Engineers. 4 p.m.

Monday, April 24.—Institute of Clayworkers' Meeting and Conference: (*a*) "Gas Firing," by Dr. J. W. Mellor (Principal of the Central School of Science and Technology, Stoke-on-Trent.) (*b*) "Automatic Conveyors." By Mr. Sidney Higgins. 3 p.m. National Federation of Builders' Merchants Associations. 3 p.m. Lecture: "What we mean by Town Planning." By Professor Patrick Abercrombie, F.R.I.B.A. 6 p.m.

Tuesday, April 25.—Lecture: "Permant Colour Schemes." By Halsey Ricardo. Chairman: the Rt. Hon. the Earl of Crawford and Balcarres. 6 p.m.

Wednesday, April 26.—London Master Builders' Association. 11 a.m. Meeting of the National Federation of the Building and Engineering Brick Trade of England and Wales. 12.30 p.m. Reception of the National Federation of Building Trade Employers by the London Master Builders' Association. Lecture: "Modern Domestic Architecture: Fashion and Style." By Sir Lawrence Weaver, K.B.E. Chairman: the Rt. Hon. Lord Burnham. 6 p.m.

Thursday, April 27.—London Master Builders' Association. 11 a.m.

Free cinema displays of modern methods of building construction will be given nightly in the Cinema Hall (approached from the Gallery.)

The Concrete Institute.

During the whole period of the Exhibition, from Tuesday, April 11, until Thursday, April 27, the Council have arranged for members of the Concrete Institute to have the use of a sitting-room, which will be situate over the main entrance.

The Secretary of the Institute will be present in the Concrete Institute's room every afternoon and evening from 3 o'clock onwards, and will be pleased to welcome members and to afford them any assistance they may require.

A series of discussions has been arranged. These will be held in the Small Conference Hall (over the main entrance) each day from April 18-21, inclusive, commencing at 5.30 p.m. Each discussion will be opened by a short paper.

A fancy-dress ball and carnival is being held in the Pillar Hall (attached to Olympia) on Friday, April 21, all profits from which will be devoted to the Architectural Association Schools' Endowment Fund. Tickets and full particulars may be obtained from the Secretary of the Concrete Institute.

The Secretary has for disposal a very limited number of complimentary season tickets for the Exhibition, but members should not apply for these unless they intend visiting the Exhibition daily. Complimentary tickets of admission to the Exhibition for any of the single days upon which the Discussions are being held, may also be obtained from the Secretary.

At Stand 113, Row F, will be found the exhibit of Messrs. D. Anderson & Son, Ltd., the felt and paint manufacturers, Roach Road Works, Old Ford, London, E. 3; Lagan Felt Works, Belfast; and Park Road Works, Stretford, Manchester. The exhibit comprises all classes of their widely-known "Red Hand" brand of roofing, sarking and lining felts, damp courses; also "Rok," "Stoniflex," and "Hippo" roofings. The special exhibits include a model "Belfast" lattice girder roof—a type of which this firm were the pioneers—covered with "Rok" roofing; and models showing a concrete roof reinforced with "Rok" roofing and Anderson's system of flat roofing. A small wooden hut with sloping roof covered with "Hippo" roofing demonstrates the uses of the latter as a cheap ready roofing for all temporary buildings. Some wood fencing has been treated with "Sidol" (Sideroleum), the well-known wood preservative. Finally, mention must be made of "Ferro-rok" corrugated steel sheets faced with "Rok" roofing which are intended as an alternative to galvanised sheets when the conditions are specially deleterious.

Messrs. James Austin and Sons, Limited, St. George's Mills, Hoxton Square, N., are bringing a representative display to Stand 96, Row E. In addition to a display of "Anchor" make plaited cords of all descriptions, such as sash cords, venetian cords, glacie lines, picture cords, halyard and log lines, indicator cords, &c., they will be showing solid braided cotton cords and solid braided waterproof cords, non-stretchable and rot-proof, for tram trolley cords, clothes lines, lift ropes, &c. Working models on the Stand will demonstrate very practically how these cords are used to the best advantage, and that good quality plaited cords are the most economical in the end. It is now generally agreed that a plaited cord cannot be equalled for pully work by any twisted cord.

The stand of the Brilliant Sign Company (1907) Limited, will occupy the same position as last year, and visitors will find something new in the way of up-to-date signs, letters, &c., especially in regard to brilliant letters, the registered "Permenart" fired-in process background work, illuminated signs of distinct designs, gilt wood letters, window letters, and signs of every variety; also cast bronze plates of ornate design. A special feature will be made of their new large recessed metal letters, now so popular for large illuminated moving signs. The Company desire to remind builders and others whom it may concern that though their "Paragon Works" in Uxbridge Road, W., is the largest sign factory in the world, yet they do not compete in the matter of builders', decorators', or joiners' work. Their aim is to co-operate with the retail trades.

Bell's United Asbestos Co., Ltd., demonstrate on the roof of their pavilion (Stand 87, Row E) the extreme utility and excellent artistic effects produced by the various forms of "Poilite" roofing, namely "Poilite" standard diagonal tiles, in red, grey, and russet brown colours, corrugated sheets, pantiles, and Roman tiles. The walls are of "Poilite" sheets. The interior of the Pavilion shows how the plasterer can be eliminated, and the charming effects obtainable both as regards walls and ceilings. The various other forms in which "Poilite" is available can be seen on the Stand, and these will inspire many further uses to

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which "Poilite" can be applied in the future, particularly in view of its extreme economy and permanence without any upkeep cost.

The Carron Company show in operation a new design of their No. 1188BB interior grate. This is a good class, specially adapted for modern housing requirements, and is fitted with welded back boiler for hot-water supply. A feature is the hinged fire front, forming a pot-rest, and the swing trivets, making it admirably adapted for living- or sitting-rooms. The company have on view their celebrated range, the "Carron," which embodies the latest improvements, including inner glass oven door, cast-iron flues, hot closet with glass doors, &c. Amongst the other ranges is the popular "New Beetonette" range, with high-pressure back boiler, plate-rack, &c.; the "Cambrian," a well-finished, high-class range; and the No. 429 range, a favourite in housing schemes—with projecting corners and iron jamb mouldings. A varied selection of interior and mantel-register grates are also shown, both with and without back boilers. High-class fire-dogs, dog grates, pierced steel and engraved hob-register grates are seen, examples of their fine collection of models which embrace unique and authentic period designs, ranging from Elizabethan to present day. This section is completed with armour-bright grates, wood chimney-pieces, and a varied selection of complete fireplace suites. Smokeless stoves, gas and electric fires and cookers, porcelain enamelled parallel-sided baths, lavatory basin and towel-rail complete the exhibit.

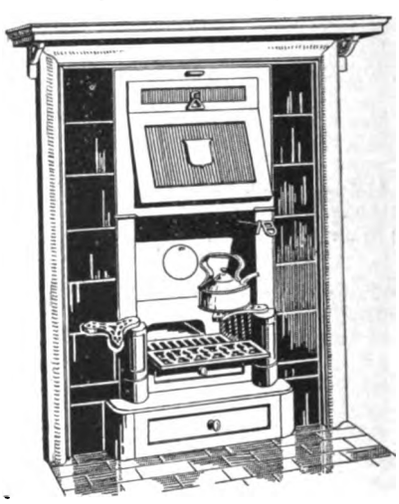
The Cement Marketing Company, Ltd., are the selling organisation for the Associated Portland Cement Manufacturers Ltd., the British Portland Cement Manufacturers Ltd., Messrs. Martin Earle & Co. Ltd., and the Wouldham Cement Co., Ltd. Their exhibit will include a working model of a complete Portland cement plant. Among the more technical exhibits on the stand will be samples of the companies' brands of Portland cement ground to various degrees of fineness; cement at various stages of its manufacture; neat and sand briquettes of various ages, and cubes of various mixtures for testing; aggregates of various description, both suitable and unsuitable for mixing with Portland cement; and also samples of lime, whiting, superfine Keene's and Parian cements; a complete set of testing apparatus used in connection with revised British Standard Specification will be shown, and practical tests will be carried out on the stand. There will also be a simple apparatus for ascertaining the proportions of cement, sand, and coarse materials necessary to obtain dense concrete. Stand 112, Row F, Main Gangway, Ground Floor.

The Empire Stone Co., Ltd., exhibit a structure built of "Empire Stone" to match Portland stone, portions being carved. Although exhibiting a summer-house, it is not in the class of work that the company specialises, but in stonework for general building work, such as cinemas, theatres, offices, hospitals, schools, factories, etc., for which it is largely used. "Empire Stone" is manufactured in colour and texture to match natural stone. Samples of "Empire Stone" steps are also shown, including one made of Hopton wood, a speciality being made of staircases for every class of building—as well as paving slabs, kerb, and channel. Reinforced concrete fence posts are another speciality, standard posts for different purposes being stocked. In addition to goods manufactured at Narborough, this Company has considerable experience in the laying of Granolithic paving for any building where a hard-wearing, dustless floor is required. Reinforced concrete construction and mosaic and terrazo paving are also important features of the company's work.

The exhibit of the Expanded Metal Co., Ltd., consists of samples of the Company's well-known products and examples of their uses; also photographs of various works carried out on its systems. Their expanded steel sheet reinforcement for concrete has been used extensively during the past thirty years in roads, foundations, walls, floors, roofs, bridges, culverts, &c. A new addition is rotary diamond mesh expanded steel. This material is a specially suitable reinforcement for concrete roads, foundations, &c. It is supplied in sheets of practically any length, by 3 feet, 3 feet 1½ inches, 4 feet, and 4 feet 1½ inches wide. The longer sheets are supplied in coils, and are more easily handled. Expanded metal lathings, both for interior and exterior plaster work, and "Exmet" reinforcement for brickwork, concrete-block work, &c., are both tried friends. On the Stand are some mild-steel wall-ties for cavity walls and a few examples of concrete reinforced with expanded metal.

Hadfields (Merton) Ltd.'s exhibit will again take the form of the Oriental pavilion which attracted so much attention at Olympia last year, the rich red and dense black lacquer effect contrasting with the beautiful white of their Heolin enamel. The Stand 88, Row E is the design of Mr. Chas. E. Oliver, and the decoration of it has been carried out exclusively with Heolin materials under his supervision at Messrs. Hadfield's Factory at Mitcham. Perhaps the most interesting feature of this exhibit will be the demonstration of the remarkable Heolin obliterating and Heolin finishing paints which, in conjunction with one another, serve to give a perfect finish in two coats on bare wood for interior work. These paints have been adopted on over 100 housing schemes throughout the country. In a number of large public buildings this two-coat process has also been adopted, as it has been found that, owing to the exceptional hiding power of the obliterating paint, old dark-painted surfaces are readily transformed to a light and bright aspect. Visitors will also have an opportunity of inspecting work done with superfine varnishes, for which Messrs. Hadfields are justly celebrated.

The Interoven Stove Co. (156 Charing Cross Road, W.C.) have two convincing facts to put before inquirers: one is that "Interovens" have been used in upwards of a hundred State-aided housing schemes, and the other that over a thousand "Interovens" have been supplied to Manchester and Bristol schemes. The appearance of this excellent convertible stove is doubtless familiar to our readers. The boiler can be heated with open or closed fire; it can be easily fitted to existing pipes, and will work tanks up to 35-gallon capacity. Another familiar product of this company is their "Bewty" fire, a fitting which transforms an



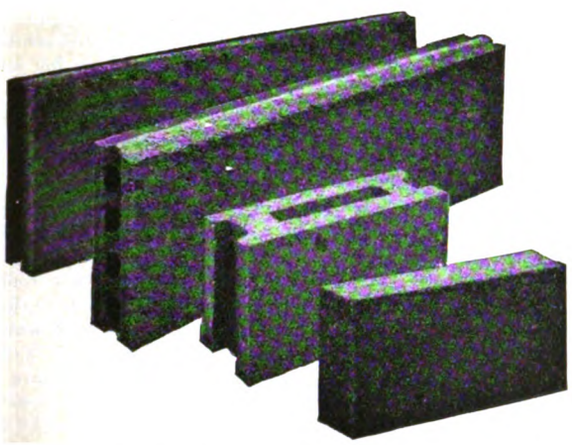
old-fashioned register stove into a coal-saving up-to-date barless fire-front with trivet.

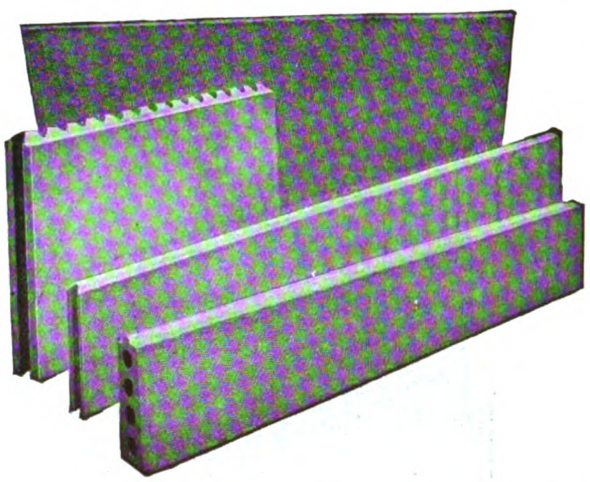
Messrs. Johnson's Reinforced Concrete Engineering Co., Ltd., have two interesting stands, one in the Main Hall, the other in the Gallery, where their reinforcements for concrete and brickwork are effectively displayed. In the Main Hall, Stand 114, Row F, their lattice and "Keedon" reinforcements are shown in a typical example of concrete floor and beam construction. A strong point in favour of lattice reinforcement is that it can be manufactured in lengths and widths to suit the dimensions of the job for which it is intended. The "Keedon" fitments for beam and column construction combine rigid and yet adjustable members. They are manufactured to size and sent to the job ready for fixing. An example is shown of a hollow reinforced concrete tile floor, which is constructed in position without the use of centering. Greater strength, lightness of construction, and increased floor area are the salient advantages gained in reinforcing brickwork, partition slabs, &c., with "Bricktor." On the Gallery (Bay No. 23) specimen rolls of lattice reinforcement as adopted for concrete roads are exhibited. The firm has carried out very extensive works in reinforced concrete, typical examples of which will be seen in the display of photographs exhibited.

The Kleine Patent Fire-Resisting Flooring Syndicate, Ltd. (133-136 High Holborn, W.C.), will again be found in Stand 111, Row F, where examples of their reinforced hollow brick floors may be seen and studied. This firm was established in 1905, since which time they have constructed a very large number of floors, roofs, and staircases on their system, with or without centering. A Kleine floor may be described as being of hollow bricks, with reinforced concrete rods acting as tension bonds placed on edge between each range of brick. Its principles are familiar to the profession, whose appreciation is convincingly demonstrated by their

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Partitions, External Walls, Ceilings, Roofs, etc.

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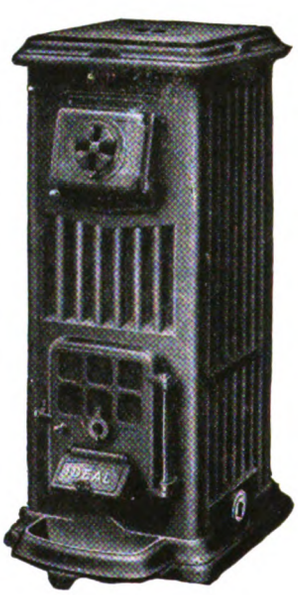
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Both a Boiler and a Radiator.

The Ideal Classic Boiler differs from all other Central Heating appliances in being both a Boiler and a Radiator. It is neat and attractive in appearance and when suitably decorated will harmonise perfectly with its surroundings so that it can be fixed in a hall or sitting-room.



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Ideal Classic Boilers will at present be made in four sizes ranging in capacity from 150 to 400 square feet of radiation. In conjunction with Ideal Classic Radiators, they are specially adapted for residential work, and with the Ideal Classic system of piping the greatest economy in installation can be effected.

Write for descriptive pamphlet.

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Offices, Showrooms & Works: HULL, Yorks.
Telephone: Central 4220. Telegrams: "Radiators, Hull."

London Showrooms: 439 & 441 Oxford Street, W.1.
Telephone: Mayfair 2153. Telegrams: "Idealrad, London."

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consistent specification of "Kleine" floors. The system carries with it the indubitable recommendation of a long list of past successes both in this country and abroad.

Marryat & Scott, Ltd., lift-makers, of 28 Hatton Garden, E.C. 1, will exhibit their passenger and goods lift gearsand accessories, including the following special features:—A passenger car fitted with their improved safety gear, which is claimed to be the most perfect and efficient upon the market. This gear comes into action instantly upon the elongation of any one of the four suspension-ropes, and is of particularly ingenious and robust design; Marryat-Scott automatic



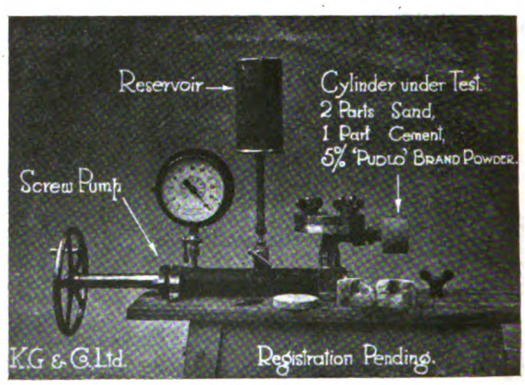
push-button equipment and car-switch equipment; their automatic gate-locking device (claimed to be the only perfectly safe lift gate lock); Marryat-Scott trip indicator recording the number, time and duration of every journey made by a lift; and the Marryat-Scott patent luminous lift direction indicator, an ingenious patented adaptation of the Osglim Lamp, which indicates by means of a luminous arrow the direction in which the lift car is travelling.

The old-established firm of Medway's Safety Lift Co., Ltd., 1 and 2 Bucklersbury, E.C., exhibit on Stand 64, Row D, several of their "Britain's Best" lifts. Medway's electric passenger lift, fixed in special steel structure, and provided with Medway's improved dual system of control. The lift can be changed from automatic push-button operation to car-switch control by merely pressing a button. The lift is fitted with tamper-proof locks and switches on all gates. The decelerator ensures smooth starting and stopping at whatever speed. In addition, this lift has a special flashlight indicator, superseding the old bell system. Medway's electric push-button service lift, which is now greatly in demand owing to small cost of installation, compactness and reliability, is fitted with interlocks to shutters and a "fool-proof" controller. By Medway's patent electric door-operating device the doors or gates on the cage and at the landing are automatically operated simultaneously by merely pressing a button. This device, which is absolutely unique, dispenses with the necessity of the lift attendant crossing the car to open the doors, and can be employed wherever electric supply is available. Medway's well-known hand-operated service lifts are also exhibited. These are provided with self-sustaining gear. In addition there is a special exhibition of many auxiliary parts.

Messrs. Nettlefold & Sons, Ltd., 54 High Holborn, W.C., are showing a complete range of the latest patterns of high-class builders' ironmongery and brassfoundry, especially equipped to meet the individual requirements of architects, and they can undertake to supply exclusive patterns to their specification. The firm have for many years specified in door fittings of all kinds, more particularly in Bardsley springs, perfect ball hinges, guardian locks, as well as butts, handles, furniture, &c. On the stand there will be a large variety of articles as supplied for many housing schemes, and as approved by the D.B.M.S., the L.C.C., and local authorities. Messrs. Nettlefold have paid special attention to the requirements of building schemes, and are in a position to meet them from stock. A new tool which should prove especially interesting to builders and joiners is an abrasive tape-holder in which, by an ingenious application of the wedge principle, a strip of abrasive tape is held very firmly while, at the same time, it is only a matter of moments to substitute a fresh strip when the old is worn out.

The Phœnix Engineering Co., Ltd., of Chard, Somerset, will be showing their manufactures as usual in the Gallery, and in the same place, Stand 9, Row B. They will exhibit an extended range of high capacity, hand pumps for contractors and other service where gritty, muddy water, sewage, or tar has to be dealt with, and in capacities ranging from a few hundred gallons up to about 6,000 gallons per hour. Particular attention should be paid to their road-tarring machinery, the result of thirty years' experience of road-tarring plant. Tar boilers and tar-spraying machines (1922 pattern) will be shown. The firm are makers of general municipal appliances.

The makers of "Pudlo" brand cement waterproofing powder exhibit a new testing machine with which demonstrations will be given for testing the resistance of waterproofed cement mixtures to permeation by water under pressures up to 300 lb. per square inch. The pressure is directly applied by means of a hydraulic screw-pump instead of by the usual cylinder containing compressed air. At the high pressures registered in Messrs. Kerner-Greenwood &



Co.'s new apparatus, the absorption of a single drop of water would at once be indicated on the pressure gauge by a decrease of many pounds. An attachment to the machine which enables waterproofed or non-waterproofed cement discs to be tested to destruction shows that the former 3-in. discs (2 and 1 and 5 per cent. of "Pudlo" brand powder) $\frac{5}{8}$ in. thick fail by fracture at an average pressure of 110 lb. to the square inch. Various practical exhibits which attracted much attention at the two preceding exhibitions are again shown by Messrs. Kerner-Greenwood & Co., Ltd.

Messrs. Waygood-Otis, Ltd., are this year occupying their usual position in the exhibition, but have taken a larger space. They have again installed a full-size working passenger lift running from the ground floor to the gallery which is capable of taking ten passengers at speed of 175 ft. per minute. The lift is fitted in self-contained steel structure, which is suitably enclosed and fitted at each level with collapsible gates of top-hung pattern. The machine is fixed at the side on ground floor, and is of standard design. In actual practice it is generally found best if the machine can be fixed directly overhead, but this was not suitable in the present instance. A powerful automatic electric brake is mounted on the coupling between the motor and winding machine. The lift is arranged with special controlling apparatus so that it can be operated from inside the car by an attendant. A dual control is provided enabling the lift by means of the operation of a change-over switch to be worked on the full automatic push-button system. Special indicators are fitted on the outside of the lift shaft to illustrate various systems which are installed by Messrs. Waygood-Otis, Ltd. One of the new features is an illuminated threshold to the lift car, which is specially suitable in private houses or dark shafts, so that a passenger stepping into the lift can always see the exact position of floor. They are also showing a complete range of eight various sizes of machines built by them, from a small electric service lift gear designed for load of 40 lb. at speed of 100 ft. per minute up to the largest size, which will carry 20 cwt. at speed of 400 ft. per minute. The exhibit includes various working models, fittings, and accessories.

(To be continued.)

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AUSTRALIA HOUSE.
A. Marshall Mackenzie & Son, FF.R.I.B.A.
Architects.

From an original Etching by
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REDPATH BROWN & CO. Ltd.

CONSTRUCTIONAL ENGINEERS,

3 LAURENCE POUNTNEY HILL, E.C.4

WORKS AND STOCKYARDS

LONDON	MANCHESTER	EDINBURGH	GLASGOW	BIRMINGHAM	NEWCASTLE-ON-TYNE
Riverside Works, East Greenwich, S.E.	Trafford Park.	St. Andrew Steel Works.	Westburn, Newton. Office: 19 Waterloo St	Office: 47 Temple Row.	Office: Milburn House.

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A Meccano Factory.

Messrs. Meccano Ltd., of Liverpool, are erecting on a site of about 9,000 feet surface, they have recently purchased in a quarter of Paris not far from the centre, a building destined for their goods department and for large offices to replace their present premises in Paris. The building, resting on ferro-concrete plate foundations—which, owing to the nature of the subsoil in this part of Paris close to the old gypsum quarries and the catacombs, had to be taken down to some depth—supporting some forty ferro-concrete pillars rising from the foundations to the roof flats, and carrying the various cross girders of ferro-concrete supporting the floors, commenced in June last, is now nearly completed as regards the main construction. The floors are constructed of a special system of steel reinforced terracotta slabs, allowing wide spans without intermediary joists and capable of carrying heavy loads.

The building consists of a well-lighted basement about 21 feet in height, taking up the whole of the site surface, with, at the back of the building, a half floor of ferro-concrete forming a workshop for models and adjusting, &c., of about 2,000 feet surface, and well lighted by a glazed steel roof above. The basement is lighted and ventilated by a central opening on the ground floor under the central area, from the area over the workshop at the back, and on the street front by a deep area or "cour anglaise." The ground floor occupies about three quarters of the site, and the first floor is divided up into spacious offices well lighted from the central area, from the back and from the street front. The second floor comprises a convenient dwelling for the caretaker, and includes a refectory for the employees, with ample kitchen, communicating with the large roof flat overlooking the south of Paris, and so constructed as to allow for the adding of a further floor when desired. The street front is built of red brick with stone dressings, and the frontage on the street of about 66 feet in actual width, offers, owing to the somewhat unusual feature of the "cour anglaise" and the central portion of circular form set back from the street line, a real lighting frontage of about 88 feet. The goods entrance on one side of the façade is quite separate from the office entrance on the other side, the vestibule on a higher level being approached direct from the street by a number of stone steps. Messrs. Meccano Ltd., wishing to give to the façade of their new building a certain dignity in keeping as much as the style of the building would allow with Parisian street architecture, did not hesitate to provide in a just measure sufficient decorative stone dressings to produce a pleasing effect.

The architect is Mr. Vye-Parminter, an Englishman long established in Paris. There being comparatively little building work going on in Paris even for French firms, except for certain banking establishments, this building for a British firm has attracted considerable interest, and the authorities themselves have expressed their pleasure at such enterprise.

Holidays in Belgium.

It is announced by the Great Eastern Railway Company that it has been decided to run again this year the short sea service between Harwich and Zeebrugge, which provides a very convenient route for visitors travelling to the Belgian coast resorts, Blankenberghe, Heyst and Knocke, also Bruges, Ghent, and other parts of Belgium.

The service will commence on June 1, and will be run six times every week in each direction instead of three times, as last year.

Restaurant and Pullman car non-stop express in connection with the steamers will leave London (Liverpool Street) at 8.40 p.m., and in the reverse direction will bring passengers into Liverpool Street at 8 a.m.

These facilities will provide an excellent opportunity of spending a very inexpensive holiday in Belgium combined with every comfort in travel.

Messrs. Thomas Lawrence and Sons, of Bracknell, inform us that the red facing bricks used in the rebuilding of Waterloo Station (of which we gave an illustrated account last week) were made and supplied by them.

General.

The Ford Motor-Car Company have decided to erect a factory at Southampton at a cost of £600,000.

This year's summer meeting of the Royal Archæological Institute of Great Britain and Ireland will be held at Ripon from July 19 to 26.

The firm of Albert E. Bullock and Gordon Jeeves, architects, has been dissolved. Mr. S. J. Gordon Jeeves will carry on practice at 4 George Street, Hanover Square, W.1, and his telephone number is Mayfair 5233.

Plans have been approved for the erection of slaughter houses, hanging sheds, and stables at Barnsley for Mr. A. Hirst. The architect is Mr. P. A. Hinchliffe, F.R.I.B.A., of Barnsley and Sheffield.

The Barnsley Grocers' Company, Limited, Wellington Street, are about to erect a large garage, of which the plans have been approved. Mr. N. A. Whitham, Barnsley, is the architect.

The Committee of the Samaritan Hospital for Women, Upper Parliament Street, Liverpool, propose to issue an appeal for £50,000 to enable them to make a start with the proposed new building.

Work has been commenced in connection with the building of a new Presbyterian Church at the corner of Hadley Road and Leyborne Avenue, Ealing, W. The contractors are Messrs. John Marsland & Sons, Ltd., of South Molton Street, W., and Walworth.

Grimsby's cenotaph, which is an exact replica of the one in Whitehall, and which has been unveiled some two months, is as yet unpaid for, and the Parks Committee has decided to let the cost of completion fall upon the rates of the town. The sum of £360 was included in the estimates for the next half-year.

The managers of the St. Vincent's Roman Catholic School have submitted plans to the Birmingham Education Committee for the replacement of the present unsatisfactory premises by a new building to be erected at Vauxhall Grove, to provide accommodation for 640 children. The sub-committee recommend the approval of the plans.

Major Douglas Wood, F.S.I., A.R.I.B.A., the Housing Commissioner at Nottingham in charge of the housing schemes in the ten Midland counties forming the Regions E. and F., is leaving Nottingham on March 31, when the Regional Offices finally close, and is taking up a special appointment at the Ministry of Health, Whitehall, S.W.1.

Canon Alexander, preaching at Paddington Parish Church on Sunday last on behalf of St. Paul's Cathedral Preservation Fund, said that a total sum of £60,000—the whole of which had been supplied by purely voluntary offerings—had already been spent on the special work at St. Paul's, and he was afraid that a large additional expenditure would be needed to complete the scheme.

Two open entrance exhibitions, tenable at the Bartlett School of Architecture, London University, of the value of £40 a year, may be awarded in June 1922. Candidates for the first exhibition must have passed the Matriculation Examination of the London University, or some other examination accepted in its stead. Candidates for the second exhibition must be graduates of a British University or some other University approved by the Selecting Committee. The exhibitions may be tenable for five years, subject to satisfactory progress. Full particulars may be obtained from the Secretary, University College, London, W.C. 1.

The "Industrial Daily News" learns that the Belfast Water Commissioners have placed a contract with the engineering firm of Messrs. S. Pearson & Son, Ltd., Westminster, for the construction of their new reservoir and dam at the Silent Valley, in the district of the Mourne Mountains, County Down. Messrs. Pearson's tender amounted to £1,035,000. The scheme comprises the construction of a large aqueduct and other works. The lake to be formed will be capable of supplying 10,000,000 gallons of water a day to Belfast. Six tenders in all were received, the second lowest being submitted by Messrs. G. Percy Trentham, Ltd., of Birmingham.

The first exhibition held in Italy especially devoted to the Art of Building will be opened in Turin on April 8, and will last to May 21, 1922. The Exhibition will be held during the meeting of the National Congress of Italian Engineers, and of the Association for the Study of Building Materials. It has been organised by a group of engineers, architects, and constructors with the assistance of the Government and the local authorities of Turin. In addition to the exhibition of building materials and methods of construction, there will be a special annexe devoted to plans and models of buildings and of furnished houses. The Exhibition will be held in the Stadium, corso Vinzaglio.

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Prosperity.

We all hope for prosperity, which is firstly the outcome of our own efforts, and, secondly, depends on the opportunities open to us, opportunities which are enlarged or circumscribed by our environment, which is largely governed by the wisdom or unwisdom of our national administration. Science may be said to advance not only because of the devotion of her followers, but because they rigidly and instantly abandon what can be shown to be untenable or unsound. Scientists do not now waste time in endeavouring to discover the elixir of life, to attempt to transmute baser metals to gold or solve the problem of perpetual motion, not because each and all of these things might not be desirable, but because they can be shown to be impossible. The result is that the energies of each generation of scientists are narrowed down to the solution of problems which may be practicable, and our sum of accurate knowledge is steadily increased.

In the province of government and administration, on the other hand, we may paraphrase Shakespeare's criticism of legal methods: "What plea so tainted and corrupt, but, being season'd with a gracious voice, obscures the show of evil." We are ready at the bidding of those who have no practical experience to abandon proved results and seek an El Dorado, which can usually be demonstrated to have no actual existence, along unexplored byways and at the cost of huge national expenditure. In other words, we waste time and money because we will not apply more scientific methods, and, above all, eliminate fallacies. The money extracted from the community to make abortive experiments is a subtraction from the funds out of which employment arises, and, more than this, encourages the ignorant to believe there is a short and easy way to compass their desires. About four hundred millions of our expenditure arises not from war charges but for paying for experiments in social betterment schemes promulgated during the last ten years, few, if any, of which can be shown to have benefited the community, while many have injured it. The direct result of a diminished income tax would be enormous and immediate, the effect of the increment clauses in the Finance Act of 1909-10 cost the country millions, and is now an admitted failure, repented after the harm was done. The Rent Restriction Act—possibly necessary as a war measure—is now holding up building which is badly needed, the whole of the agricultural measures brought in by Government are admitted failures, and business is further damaged by the Corporation Tax, and again handicapped by excessive postal and telephone rates.

Blackstone held that civilisation was dependent on the degree in which rights of property were held to be inviolate, a maxim of the soundness of which we have had recent proof.

The great building industry is perhaps more dependent than any other on the maintenance of the only sound basis on which civilisation has been shown to rest. There is little wisdom in investing money in land and building if there is a prospect of confiscatory legislation, for neither land nor buildings can be transferred like shares, while, apart from national taxation, the administration of government by local authorities, permeated with Socialistic views, can very soon make property worthless by great increases of rates. If a man builds for any purpose other than private enjoyment, or if he ventures any considerable portion of his capital in building, he is, in fact, speculating on the probability that those in power, now and in the future, will act reasonably, for he has given himself into the power of others who may strip him as cleanly and thoroughly as ever did a highwayman on Hounslow Heath in past centuries.

Our greatest hope is that the example of Russia, which Bolshevism has converted into a desert, and the results of the lesser experiments in diluted Socialism which have been tried here within recent years, will teach our rulers wisdom, if so we may see a return of real prosperity; if not, we shall travel a stage further towards new and worse difficulties. Sooner or later the unemployment doles must cease, especially as the existence of the Poor Laws make it impossible for anyone to die of starvation. That the process of relief should be unpleasant to the individual was quite compatible with its soundness in the general interests of the community, for the stimulation of individual effort alone makes possible a prosperous and healthy State. By burdening the employer with excessive taxation we are, in fact, increasing the unemployment which is so greatly deplored, and the real enemy of the whole working classes is the existence of a misguided body of political experts who are adopting the wrong remedies for the evils they deplore.

The working classes of America are certainly not less alive to their own interests than their fellows in this country, yet there is in America no distinct political Labour Party. By the creation of a Labour Party in this country the working man is losing the chance of taking an effective share in the direction and organisation of parties which are probably more powerful than Labour can be by its own efforts. Labour is, in a word, backing a horse which stands to lose instead of putting its money on a favourite. For, happily for the country, it still contains a majority who have a little, if only a little, to lose, and political Labour is a menace to all who are in this position. We must not suppose that the recent defeats of Labour in the County Council elections and those for the Boards of Guardians have been brought about by plutocrats, for they are the direct results of the desire of a multitude of small people to save themselves and to keep the little they have toiled to make. The true interests of the building industry, so closely connected with that of Labour itself, are in promoting sane conservatism which may be defined as the greatest liberty of all men to advance their own interests as they best can under the shield and protection of just laws, a conservatism which will adopt improvements and will pay no superstitious regard to mere privilege, but which will not try rash experiments at the expense

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of the general community. The working classes recognised the value of leadership in war, irrespective of consideration of class distinctions, that leadership is as essential and necessary in times of peace, and should be accorded as willingly without consideration of persons. And Labour is entitled to the fullest and fairest recognition of the value of good work, on which the prosperity of the country depends. Fortunately there are signs that in the building trades at least these considerations are ensuring greater recognition, and that it may yet prove to other industries that prosperity must be the result of the collective effort of all classes working in their individual ways for a common end desired by all.

Illustrations.

FIRE STATION (WITH FIREMEN'S COTTAGES, POLICE HOUSES, &c.) AT TILBURY FOR THE PORT OF LONDON AUTHORITY. EDWIN COOPER, Architect.

MARYLEBONE TOWN HALL WAR MEMORIAL. EDWIN COOPER, Architect.



FIREMEN'S HOUSES, TILBURY, FOR PORT OF LONDON AUTHORITY. EDWIN COOPER, Architect.

Notes and Comments.

A County Council's Buildings.

A special Sub-Committee of the Somerset County Council, appointed to report on the advisability or otherwise of appointing a "whole-time" architect to do the County Council's work, reported that they owned or held on lease the following buildings: Eleven county offices at Weston-super-Mare, fourteen dwelling-houses for staff at Weston-super-Mare, one dwelling-house for staff at Flax Bourton, Cannington Court, farm, and cottages, 367 small-holdings buildings, six tuberculosis hospitals and sanatoria, seventeen health dispensaries, one mental deficiency institution (exclusive of Sandhill), ten art and technical schools, six secondary schools (probably nine in September), 139 elementary schools, 127 teachers' and other houses (in addition, the Education Committee has hitherto undertaken internal repairs at seventy-five voluntary school teachers' houses), also six other educational buildings.

The Committee's comments and recommendations were as follow: "Mr. C. R. Cole, of the County Surveyor's office, finds the Education Committee's repair work alone to be considerably more than he can cope with. We are of opinion that there is quite sufficient work, even if no new buildings are erected, for two full-time architectural officers; and we consider that considerable economy in the cost of building and repairs should be effected by employing officers who are paid by fixed salaries. Accordingly we recommend the Council to employ two architectural officers to do all the architectural work of the County Council, except in such cases as the County Council shall authorise the engagement of outside architects; the appointment of these officers to be made by the County Council on the recommendation of the Staff Committee; their salaries to be £500 and £400 respectively; also to add a fourth-grade clerk to the surveyor's office. We are informed that there is sufficient room for the above staff in the County Surveyor's offices."

Lord Strachey dissented from the recommendation, and it was ultimately decided to refer the proposals back and to obtain a report from the County Surveyor, while another member suggested that the Surveyor should be made responsible and given four architectural assistants, and someone else said that a good clerk-of-the-works could look after many of the buildings enumerated. The proposer of the resolution urged that the Council had paid £6,000 a year to outside architects, and would save by appointing an architect of their own. All, we should say, would depend on the capabilities of the man appointed—a point not referred to by anyone during the discussion!

New Lamps for Old.

The "Daily Mail" refers to a new invention which is to be placed before the public in the summer and is an electric lamp which contains a source of independent energy which supplies electrical energy for a term of some three or four years. As the lamp is to be produced at a cost of 12s., it will form a remarkably cheap form

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FIREMEN'S HOUSES (WITH FIRE STATION IN THE DISTANCE), TILBURY. EDWIN COOPER, Architect.

of illumination. But though we hope, it sounds rather too good to be true, but if it should be so it will solve a very difficult problem—the efficient and convenient lighting of buildings which are far removed from sources of supply. Oil lamps are frankly a nuisance—for those who have to clean and trim them—but the new lamp might even attract those who are in electrically-provided areas, since it would eliminate the expense of wiring, while presumably the standing charges for lamps would not be increased or altered.

The £388 House.

The £388 house contract was entered into by the Unit Construction Co., but we learn the conditions were unusually favourable. The company are already engaged on a municipal housing scheme at Newport, only a short distance from Risca, which was one of the reasons that enabled them to submit a low tender. Their workmen were on the spot, so to speak, and they would be able to undertake the work without incurring additional overhead charges. Another reason which weighed with them in arriving at their tender was the fact that the new houses were to be built on the site of a partially completed housing scheme, and much of the drainage work and fencing had been accomplished.

It is of interest to note that the eighteen houses at £388 each form but a part of the contract, which includes both parlour and non-parlour houses. The eighteen houses referred to are to be brick-built and will comprise a living-room, scullery, bath, three bedrooms, and the usual offices. Twelve other non-parlour houses of similar type, but a little larger, are included in the contract, and the tender for these is £404 each. In addition, there are twenty parlour houses, eight of which the Unit Construction Co. are prepared to build for £481 each, and the remaining twelve at £491 each. The average price on the contract, therefore, works out at £440 per house.

It will be seen from the foregoing that no sensational break in prices has occurred, and that special conditions have resulted in a tender which has seemed to the public like a glimpse of the Promised Land.

Irish Housing.

We are given details of the proposals made for dealing with housing in Southern Ireland. First, a special housing rate of a shilling is to be imposed, then short-term loans for twice that amount are to be raised, and the Government—when there is one—is to contribute double the amount so raised. It is interesting to inquire where the money is to be obtained. We imagine the rateable value of property in many districts in Ireland chiefly exists on paper. The non-payment of rents has become a national feature, and we have never learnt that the Irishman has much inclination to pay one man more than another. Where are the short loans to be obtained, and who is likely to accept the Government's guarantee of interest, and, lastly, how will the Government obtain the funds from which it will double the payments made from other sources? The difficulty may possibly work out in this way. If the shilling rate produces little or nothing it may be possible to double little or nothing, and for the Government again to double the sum total of little or nothing. But, as stated, the scheme sounds to us sketchy. The sister island does not at present seem a quiet home and happy haven for those who have means, education, and position, and it is, unfortunately for the theorists, these men who have hitherto contributed financial aid. Workhouses are to be abolished, some being retained as hospitals and others as homes for incurables, for it is the desire of the Government to wipe out the abuses which flourished under the English administration of Poor-Law Institutions. Everything will, in fact, be done for everybody, and considerations of finance will not be allowed to stand in the way of the consummation of perfection. It is, indeed, a halcyon dream, and one which we hope will come true in every particular. In any case, it should afford fresh material for drama to be fittingly rendered by the Irish Players.

The Speculating Builder.

At a recent conference of builders at Nottingham it was suggested that the time had come for the speculating builder to do his quota to provide houses for the community. Certain conditions must be observed if this is to be so, the first being the repeal of the Rent Restriction Act, the second the termination of State and municipal housing, and the third the financing of the small speculator by advancing him a sum of not more than two-thirds of the cost of the houses for a short term of years; subject, of course, to the accommodation provided and the work done being of a certain agreed standard. We do not know any reason why these three conditions should not be fulfilled. It is suggested that a couple of million pounds might be set aside for financing the private builders, such a sum would be paid off as the houses were completed and sold, and would then be available for more work of the same kind. In this way public money would not be expended, and there is reasonable hope that the public would get what it wants. The speakers at the conference were all of opinion that post-war rents would be about double pre-war ones, and this, too, is borne out by all we can know of the probable future costs of building.

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London Art Galleries.

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The Spring Exhibition of the Royal Society of British Artists (the 157th exhibition of this Society) opened on March 31 at the Suffolk Street Galleries. The President, Mr. Solomon J. Solomon, R.A., sends this year an excellent three-quarter-length portrait of Charles F. Ince, Esq., which is at one end of the Central Gallery, while facing it at the other end is Fred Footet's "Summer Idyll," a southern dream of monumental cypresses and spreading landscape, painted in that key of purple-blue which this artist so often affects. The two paintings by Dorothea Sharp in this room—"Little Water Sprites" and "The Water's Edge"—are to be noted; they are good examples of her brilliant and effective manner of treating these scenes of children bathing or paddling in the sunlight. In figure work here the most noticeable of Mr. Handley Read's three contributions is his "Bathers," a group which is cool and fresh in colour, though the central figure of these three Graces might be criticised in drawing, especially the treatment of the left arm. In the same room David Jagger has two brilliant portrait studies ("The Black Mantilla" and another), and Orlando Greenwood one of his clever still-life groups, under the title of "The Epicure"

I noticed particularly among the watercolours here Ernest Haslehurst's "Bruges Waterway" in the first room, and the same artist's "Grey Day, Dordrecht"; Mr. Hannaford treats a very similar subject in his "Old Canal, Dordrecht," and two other water-colour paintings of merit are Barry Pittar's "St. Paul's from Bankside" and Madeline Wells's "Montpellier" in the same room. Miss Canziani has a charming little interior study in the first room, near some designs for ballet costumes by John Aysten, who seems in his "Hermes" to have gone to Etruscan sources, and is in any case rich in colour and bold in design; on the other hand, "Fantasy," by Cyril Saunders Spackman, seemed to me harsh and crude in colouring. The whole exhibition keeps the level of previous years, without being specially important.

At the Greatorex Galleries on Tuesday, April 4, the Right Hon. Sir Alfred Mond, M.P., presided at the opening of an exhibition of sculpture and dry-points by Henry Glicenstein. In his preface to this exhibition, Mr. Konody points out that this artist "shares with Jacob Epstein the distinction of leadership among the artists of Jewish race," having been born at Rurek, in Russian Poland, in 1870; but he has been living for at least twenty-five years in Rome, where he tells me nearly all the bronzes here exhibited were cast, and where, I imagine, his really fine portrait bust of the late Dr. Ludwig Mond must have been modelled. I find this an excellent likeness of that lover and collector of art, whom I knew well in Rome in pre-war days; and I should consider the bust of Gabriele d'Annunzio a no less faithful likeness. But the artist would perhaps prefer to be judged by his ideal subjects, mostly single figures in bronze, taken from the story of his race. There is something very impressive in his bowed figure of "The Messiah," almost as if overpowered by the tremendous message which he is waiting to deliver; and the same conception appears in a less degree in his prophets, notably in the Jeremiah. The sculptor pointed out to me specially his group of "Ruth and Boaz," which is a very happy composition; and personally I liked his incursion into the field of Greek legend in the relief of "Hermes and Psyche," cut out, he tells me, directly upon the stone. The dry-points are interesting and full of temperamental vigour. "Only a sculptor," says Mr. Konody, "could have produced that astounding set of the 'Book of Samuel,' which is Glicenstein's principal achievement in this particular branch of art. . . . The very arrangement of the designs on the etched surface is suggestive of bas-relief, and the line itself is chiselled in rude strokes rather than delicately scratched into the copper." We seem in these days to be passing through a wave of Jewish influence, which extends from politics into the quieter surface of art; the advent of Henry Glicenstein may represent one of its many currents.

Mr. Dodge Macnight, whose work made a success in the Boston Art Club exhibition of 1921, by the side of Winslow Homer and John Sargent, still lives at East Sandwich, on Cape Cod, which furnishes several of the subjects of his water colours now being shown at the St. George's Gallery, other subjects being taken from Arizona, Mexico, and Oregon. It is perhaps difficult for us to judge of the colour of such scenes as his "Side Canon, Arizona," his "Crater Lake, Oregon," or again his "Village Lane, Mexico," or "Blue Shadows, Mexico," where the colouring must be of an intensity and brilliancy of light beyond anything to which we are accustomed in Europe, though we find ourselves at home in his "Land's End, Cornwall," or even in his Cape Cod subjects, and can appreciate the telling note of colour in his "Red Sleigh." What is apparent, however, is the mastery of his medium and clean, brilliant quality of his work. Dodge Macnight's medium has, I believe, been always water colour, and water colour only. "His palette," it has been said of him, "is restricted. He uses no body colour; his transcription of his impression of nature is as direct as a flash of light . . . his mission to seek in some unspoilt region a vivid scene of sunshine, and to flash it upon a Whatman board."

Another exhibition of the work of a single modern sculptor which will compete with—or may even surpass—that of Glicenstein in interest will be that of the sculpture of Havard Thomas at the Leicester Galleries on April 22. Many of my readers may remember the stir caused by the rejection of the "Lycidas" of this sculptor at the Royal Academy some years ago—though this work has since found a home in the Tate Gallery. The coming exhibition will, I am told, be thoroughly representative, and include drawings as well as sculpture.

The Kent Lacy Gallery at Brighton, which has been giving this winter an attractive series of exhibitions, has this month the lithographs of John Copley and Ethel Gabain and the wood-cuts of Edmond Lucchesi. These last will be known to many of my readers from reproductions in "The Studio" and elsewhere, to which their strong, clean drawing and simple washes of colour lend themselves effectively. I remember that the charming 'Mort du Cygne" was so reproduced. Among the recent drawings shown here are "1793," illustrating a story of the Terror at Paris, and "Finale," a recumbent figure in which the artist shows his mastery of line. Both these, as well as the "Papillon Noir," are in black and white, in which Mr. Lucchesi excels; some of his colour subjects, such as "Aphrodite," which seems to me coarse in line, are less successful.

Considerable interest has been awakened by the two simultaneous exhibitions of the work of John Sell Cotman, that of his drawings in the British Museum having been opened on April 1, and that of the Tate Gallery last Thursday. My readers should make an effort to see this last, and if possible both exhibitions. John Sell Cotman, who was a friend of Turner and Girtin, is one of the greatest of our British water-colour artists, and I hope to return to this subject in more detail in my next week's notes. Present exhibitions of importance are those of drawings of Avignon by F. L. Griggs, R.E., at the Cotswold Gallery in Soho Square, W.; of the late Claude Hayes, R.I., R.O.I., at Walker's Galleries, open till April 22; and of the work of members of the Lyceum Club at the Gieves Art Gallery in Old Bond Street.

S. B.

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Modern Methods in Building Construction.—XII.*

By Albert Lakeman, M.S.A., M.C.I.

FOUNDATIONS ON SOFT SOILS.—*cont.*

The merits of the different methods of dealing with the foundations in soft soils can be considered briefly on the assumption that the conditions of usage previously referred to do not impose any serious limitations to either method being followed. When the whole of the foundations are carried down to a hard strata the actual design of the bearing portions will be similar to that for foundations in ordinary soils, and the principal points to be considered are those concerned with the excavation and holding up of the soil during the execution of the foundations.

As the soil is of a soft nature the timbering will need to be efficiently carried on as the excavation proceeds to prevent waste of time and labour through constant falls of earth, and in many cases it will be economical to adopt a light form of sheet piling or vertical planking, which can be driven down as the work proceeds with the introduction of walling-pieces at different levels to provide stiffness, and transmit the thrust from one side of the excavation to the other. In place of wooden struts between these walling-pieces in trench work it is a common practice in modern American work to use a light metal strut, which is adjustable in length, and which can be placed by unskilled labour in a few moments. The centre portion consists of a steel screw having a male and female thread, and a few turns are sufficient to tighten up as required. Such struts can be used over and over again on many schemes, and form part of the general contractor's equipment, while the initial outlay will soon be repaid on an extensive scheme. Owing to the comparatively great depth of the digging it will be necessary to put in the foundations as quickly as possible, and the speed and cost of the work will naturally be considerably affected by the work having to be carried on under adverse conditions as compared with work in ordinary soils. This method of foundation work will not appeal to the skilful designer as the *most* economical, and the alternative methods will generally be adopted where conditions permit.

The practice of sinking the excavation at certain points only for the purpose of providing piers or columns as supports for beams and slabs at about the ground level is one which will generally prove more economical and quicker of execution, and it has much to commend it. The excavation and timbering can be reduced to a minimum, any heavy point loads can be given a firm bearing, and the actual structure can be rendered independent of the soft soil or made ground over which it is erected. Careful design is essential to provide continuity to give a uniform distribution of pressure over the soil, and provision for negative bending moments must be made at the points where these will occur. An example of this form of construction which had to be dealt with by the writer was that of a building about 600 feet long and over 100 feet wide where the whole area of the site consisted of made ground about seven feet deep, overlying about eighteen inches of vegetable soil below which was a good ordinary bearing strata. The building was to be of steel-framed construction, and it was erected as a warehouse in the first instance, but conversion into a factory was likely to take place as the manufacturer's operations extended, and additional output was necessary. The steel stanchions were spaced at twenty feet centres longitudinally and about thirty feet centres transversely, and the large amount of excavation required was considered a serious objection when the whole of the external walling, amounting to about 1,400 feet run, was taken into account. To overcome this objection excavations were made by sinking holes at each stanchion position down to the solid ground and piers were carried up to a level about eighteen inches below the floor line. On the line of all external walls a shallow trench was then excavated, and in this a continuous reinforced concrete beam was constructed, the earth acting as the necessary form, and when this was complete the wall and stanchions were set over the piers, and on the beams the brickwork for the walls was carried up.

The interior columns were also carried on piers built up from the solid ground, and the floor was of a temporary nature consisting of paving slabs bedded in ashes to facilitate removal at a later date. In due course the building was required for manufacturing purposes, and the installation of machinery of different types became necessary. All the very large machines were placed on new foundations constructed by lifting the temporary floor and excavating down to the solid ground, and all the lighter machines were placed on light rafts about six or nine inches thick, which were substituted for the temporary floor as required. In the case of large machines near the external walls no trouble was experienced in the execution of the foundations, as there was no danger of the walls slipping owing to the weight of the latter being carried by the reinforced-concrete beams, and a distinct advantage was gained by the possibility of carrying drains, trenches, and pipe lines generally *under* the beams without the need of any cutting away or strutting up of existing work.

It was not necessary or desirable to excavate and carry down foundations for the whole of the walls to the hard strata, and considerable time and money were saved by the adoption of the method.

The scheme in this case did not justify, or indeed permit of, a raft over the whole site, but in many schemes where a permanent floor is to be constructed and ordinary working loads have to be provided for over the whole area, it will be necessary to form a concrete raft to prevent local settlement where loads occur, because it is impossible to operate any building wherein some open gangways and spaces are not provided for working purposes, and thus unequal loading is bound to occur. The determination of the positions of the loads will generally be impossible when the design of the building is being prepared, and thus provision must be made for the worst possible conditions which will occur when one bay is fully loaded and adjoining bays are unloaded. In order that the use of the building is not restricted, it will also be necessary to provide for the maximum loads over the whole area resulting from any reasonable future usage to which the building may be put. In a large public building, for example, the ground floor may be intended for offices only, but, at the same time, safes may be placed in almost any position, and the storage of books and papers may result in a very heavy load per super foot on some parts of the floor. The ground floor of a factory may be intended as a shop fitted with benches or light machinery; but it is possible that at a later date some heavier machinery may be required, or some part of the space will be utilised for storage purposes, resulting in comparatively heavy loads. The maximum load to be provided for will naturally be governed by the class of structure, but it follows that the raft, which is carried at certain pre-arranged points by piers down to the solid ground, is subject to the same conditions as the upper floors, which are carried by columns, and the general design and calculations for the raft that is supported by piers will follow those which apply to ordinary reinforced floors. Where the spacing of the supports is such as to give large bays of raft, it will be necessary to introduce beams to stiffen the slab and assist in carrying the loads to the supports, and no load can be considered as coming directly on the soft soil at the surface, as any small

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* I. Introduction, Steam Shovels, Jan. 13; II. Steam Shovels (*cont.*), Trench Diggers, Jan. 20; III. Grab Buckets, Scrapers, Jan. 27; IV. Drag-line Excavators, Feb. 3; V. Derricks and Cranes, Radial Loaders, Feb. 17; VI., Surplus Soil Transport, Feb. 24; VII. Surplus Soil Transport (*cont.*), Mar. 3; VIII. Surplus Soil Transport (*cont.*), Mar. 10; IX. Surplus Soil Transport (*cont.*), Mar. 17; X. Surplus Soil Transport (*cont.*), Mar. 24; XI. Foundation Work, April 7.

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compression or settlement of this soil would leave the slab unsupported and liable to fracture.

The third method for dealing with a soft soil was that of constructing a raft at or about the surface level over the whole area of the building to give a minimum unit pressure on the soft soil.

This system is quite distinct from the method just mentioned because it is designed to make the soft soil actually carry the load without any piers carried up from the hard strata beneath, and concentrated point loads must be taken up and distributed by the raft itself. In single-storey buildings and in cases of fairly light loading this method will prove very successful and economical, and the writer has executed many schemes in this way. It is first necessary to determine the maximum unit pressure permissible on the soft soil, and this pressure, divided into the total load of the building and contents, will give the area of the raft necessary, which must, however, cover the minimum area occupied by the building.

The whole raft is then treated as a slab with a definite unit pressure acting upward, and the most simple method of design is to consider the drawings upside down and take the upward pressures on the raft as loads which must be transmitted to the columns or other features producing point loads in such manner as to produce reactions equivalent to these point loads. To accomplish this it will be necessary in some cases to introduce ribs to stiffen the raft and enable the load to be distributed equally without making the raft excessively thick over the whole area to provide for the positions where the maximum loads occur. If possible the raft should be of uniform thickness throughout, as it is better to provide these ribs than change the section of the raft slab itself. The raft may be reinforced in both top and bottom surfaces where this is justified over the whole area, but when this is not required care must be taken to place the reinforcements on the surface where tension will occur and in some parts this will be in the upper and in other parts in the lower surface as the raft is in the nature of a continuous member.

Where walls occur or where stanchions or other loads are brought down near the external faces of the structure the raft must extend a sufficient distance beyond these to permit the uniform distribution of the pressure on the soil below. Concentrated stanchion loads are often distributed over medium or soft soils by means of a grillage foundation, but although this may be considered a

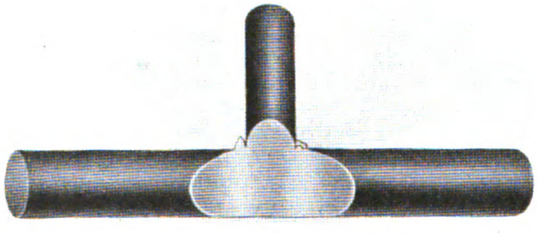


FIG. 62.—CUT THROUGH WELD OF B.R.C. FABRIC.

type of raft foundation, it is quite distinct from the method under consideration and should be the subject of further notes.

The construction of raft foundations is a simple matter provided the work is clearly designed and suitable materials are obtainable. The reinforcement should consist of a reliable fabric in preference to single rods, as the latter are more expensive, are more costly to prepare and place, and liable to become displaced during concreting, while the distribution of the stresses by the use of a fabric will be better than that obtained by rods unless the latter are so numerous and so closely spaced as to be excessive.

Many good and reliable steel fabrics are now obtainable which are very suitable for raft work, and some notes on these, together with the makers' claims, can be given. It must be clearly understood that the writer is not advocating any particular manufacturer's fabric, but merely presenting particulars, information, and claims which will be useful for reference, and at the same time the designer and contractor will be assisted in making a selection of what is essentially a modern type of material for reinforcing concrete rafts and similar features. The fabrics available include "B.R.C. Fabric," "Wonpees Fabric," "The Walker-Weston Reinforcement," "B. and T. Mesh," "Triangle Mesh," the "Lattice"

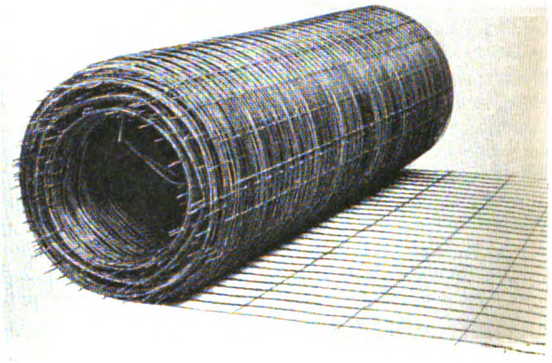


FIG. 63.—ROLL OF B.R.C. FABRIC.

system, and "Expanded Metal." It is very doubtful if the average architect or contractor could describe the whole of these fabrics and state the available sizes, gauge, and other essential particulars of each, and without this knowledge it is clear that he cannot be sure that the most suitable material is being used in his work.

The B.R.C. Fabric is manufactured and supplied by the British Reinforced Concrete Engineering Co., Ltd., of Manchester, and they claim that their product is the ideal reinforcement for concrete slabs and surfaces of all kinds. The fabric consists of a wire mesh made up of a series of parallel longitudinal wires, held at fixed distances apart by means of transverse wires arranged at right angles to the longitudinal ones and securely welded to them at the points of contact by a patented electrical process. The wire used is best-quality mild steel, and in the making of the mesh the longitudinal wires, which may be of any gauge, are automatically drawn from supply reels through a machine which accurately spaces them at fixed distances apart. The progress of these longitudinal wires through the machine stops momentarily at definite intervals while a single strand of transverse wire is placed across them at right angles, and at each point where the transverse wire crosses the longitudinal an electrical contact is then formed, which thoroughly fuses the metal of the two wires together. It has been proved by exhaustive tests that the connection made by the weld is a perfect one, and the metal has actually become homogeneous, while an examination through a microscope of the metal at the point of union, when cut through, shows a surface absolutely smooth and unbroken. Strands of the fabric subjected to tension until broken have always failed at some part where the weld does not occur, and during hundreds of such tests a break directly at the weld has never been made. An illustration of a piece of this electrically cross-welded steel wire that has been cut through at the point of union is shown in fig. 62, while the nature of the fabric generally can be seen in fig. 63, which illustrates the finished product. It is claimed that every

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strand of wire is placed with absolute accuracy mechanically, and the mesh is therefore perfect as regards spacing and alignment, while it is delivered to the site of building operations in compact rolls ready for installation.

Among the other advantages claimed for this material are that it gives the greatest possible rigidity, the steel is throughout of tested and determined strength, and it is possible to obtain the fabric in sheets up to 7 feet in width and of any length, which allows the reinforcement to be laid from end to end of the structure without any breaks or joints, while the perfect alignment provides reinforcement on direct lines of tension, and the original form is maintained when under stress.

The fabric is supplied with a light coating of slaked lime to protect it from rust during transit or while lying in stock. The makers supply certain standard types, which are designated by numbers, but almost any combination of wire can be given to meet a user's special requirements provided the difference between the longitudinal and transverse wires does not exceed seven numbers of Imperial standard wire gauge. Any size longitudinal wire from 4 to 12 (inclusive) can be combined with any size transverse wire from 3 to 12 (inclusive) Standard wire gauge, subject to the reservation above mentioned, and No. 4 is the heaviest that can be used when both wires are the same size. The safe working tensile strength of the wire can be taken at 25,000 lb. per square inch, and the longitudinal wires may be spaced on centres of 2 inches and upwards in steps of ½ inch. The standard spacings are 3 inches, 6 inches, and 12 inches. The transverse wires may be spaced on centres of 1 inch and upwards in steps of 1 inch, while the standard spacings are 6 inches, 12 inches, and 18 inches.

The standard width is either 84 inches or 87 inches, according to the reference number of the material, as follows: Reference Nos. 1 to 14 is 84 inches, consisting of twenty-eight longitudinal wires spaced at 3 inches centres with transverse wires projecting 1½ inches bevond each outside wire, and for Reference Nos. 610 and 1210 the width is 87 inches, consisting respectively of fifteen longitudinal wires spaced at 6 inches centres and eight longitudinal wires spaced at 12 inches centres with transverse rods projecting as before. The width charged for is the distance from end to end of transverse wires.

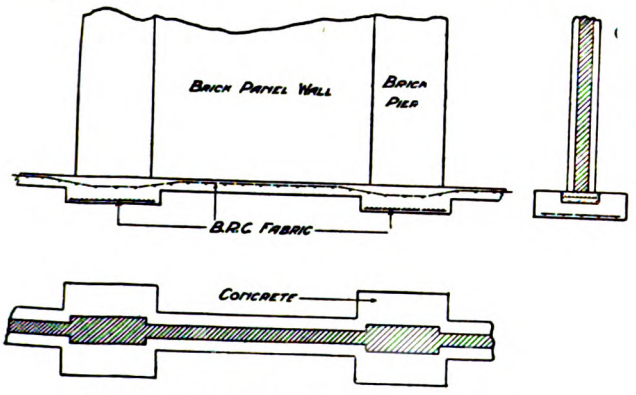


Fig. 64.—B.R.C. FABRIC IN FOUNDATIONS.

The material is supplied in rolls or sheets as here given:—

Ref. Nos. 1 to 5 are in sheets 17 feet long.
Ref. Nos. 6 to 8 are in rolls 180 feet long.
Ref. Nos. 9 to 1210 are in rolls 240 feet long.
Ref. Nos. 6 to 1210 are also supplied in rolls 30 feet long.

It is preferable to adhere to standard sizes where possible, as these are the cheapest to buy, and immediate dispatch can be given, while the range supplied in these standards should be sufficient to cover all ordinary work.

The weight of the fabric varies from 16.23 lb. per square yard for Ref. No. 1 to 0.78 lb. per square yard for Ref. No. 1210. The former has a safe tensile strength of 12,600 lb. per foot width of fabric, and the latter 325 lb., and a good range in strength is therefore obtainable. The application of the B.R.C. Fabric to the foundations of a building on soft ground, where the walls consist of brick piers with brick panels between, is shown in fig. 64. In this case the loads carried by the piers should be calculated per foot run

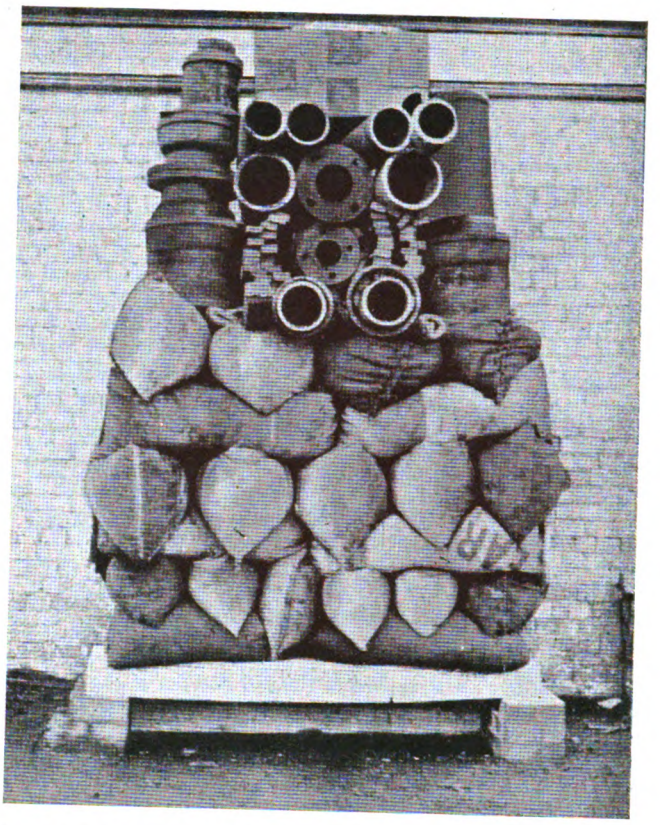


Fig. 65.—TEST ON SLAB REINFORCED WITH B.R.C. FABRIC REINFORCED WITH STIRRUPS.

and the foundations proportioned accordingly, the fabric reinforcement being laid in sheets with the heavier close-spaced wires transverse to the length of the wall. The foundation under the panels will be lighter, and the reinforcement should be laid close to the upper surface of the concrete and be bent downwards towards and through the pier foundations. This method will counteract unequal settlement and assist in preventing cracks in the brickwork, which would otherwise be liable to occur owing to the unequal loading of the foundations.

The illustration in fig. 65 shows a test on a floor slab reinforced with 0.2 per cent. of steel in the tension area and with B.R.C. stirrups. The clear span was five feet, and the breaking load 7 tons 16 cwt. per super yard. It will be noticed that the left-hand support has sunk somewhat under the load, and this added to the severity of the test. A companion slab, but with loose shear members instead of B.R.C. stirrups, failed under a load of 4 tons 4 cwt. per super yard.

(To be continued.)

The committee of the British War Graves Association for Sheffield and district have received plans of the proposed cenotaph from the architects, Messrs. Chapman & Jenkinson. After they have been submitted to the Lord Mayor and his Advisory Committee an effort will be made to get the memorial erected at the earliest possible moment.

Since the establishment of the First Atelier of Architecture in London by the Beaux Arts Committee in 1913 the honorary secretaryship of the Committee has been undertaken by Mr. C. McArthur Butler, who has now relinquished it owing to the pressure of his engagements as secretary of the Society of Architects. His successor in office is Mr. Cart de Lafontaine, whose acceptance of the position will be regarded by all who are acquainted with his qualifications as a good augury for the further progress and development of the Committee's educational activities. The work of the Committee and of the Atelier will continue to be carried on at 28 Bedford Square, W.C. 1, and Mr. McArthur Butler's experience will be at the disposal of the Beaux-Arts Committee, of which he remains a member.

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Correspondence.

"Evils Bring their Remedies."

To the Editor of THE ARCHITECT.

SIR,—In reference to the remarks in your "Notes and Comments" column in your issue of March 31 under the heading "Evils Bring their Remedies," may I, as an architect, offer my strong disagreement with the particular form of remedy which apparently you are prepared to advocate?

While agreeing with some of the criticisms made at a recent meeting of the Cardiff City Council respecting the local street architecture, and endorsing your own statement that Cardiff generally has "an air of shoddiness and want of finish," I think, in the interests of the profession generally, it is highly undesirable that any local authority should be given powers to control the *elevational* design of buildings proposed to be erected within their area, especially when those powers would be vested in the person of a city engineer or those having no special training in things architectural.

It will certainly be humiliating if we, as architects, have to submit our elevational designs to the tender mercies of a blue pencil vigorously wielded by someone on the staff of a city engineer's department. Perhaps we might face the humiliation if the consequent results were likely to prove beneficial; but are they? I beg to submit, with all due respect to engineers in their proper sphere, that they are not the competent persons to judge the merits or defects of architectural design.

If the Cardiff City Councillors are so anxious to improve the appearance of their streets, let them turn their attention to making an adequate and proper approach to the fine group of buildings in the Cathays Park, or do something to mitigate the evil of the obvious and glaring advertisements defacing so many Cardiff buildings (where in some cases whole façades have been painted a glaring colour and six-foot letters superimposed); but do not, Sir, advocate that the local authorities should sit in judgment on architectural design, for the remedy will in all probability prove far worse than the disease.

The present-day architect is already sufficiently cramped and hedged about by by-laws, regulations, and red tape without having further interference from incompetent critics.—Yours, &c., "STYLOBATE."

April 4, 1922.

Rights of Associates.

To the Editor of THE ARCHITECT.

SIR,—This matter is very simple. The question is "Have Associates the same voting powers as Fellows"? The answer is "No."

I understand that nine years ago the Council and the general body decided that Associates ought to have exactly the same powers as Fellows, but this and other important reforms were held up on account of the war, and are now delayed because of the Unification and Registration Committee's proposals. The remedy is very simple. Let us get rid of that scheme and start work on something really useful.—Yours, &c., SYDNEY PERKS.

Guildhall, E.C.

Unification and Registration.

To the Editor of THE ARCHITECT.

SIR,—In a letter published in your current issue, the representatives of the R.I.B.A. Defence League submit that they have not misrepresented the views of the Unification Committee, and in support of their contention they purport to quote the remarks which some of the speakers made at the Unification meeting on May 12, 1921, as reported in the R.I.B.A. "Journal" of May 28, 1921.

I am quoted by the Defence League as saying that "Scheme A was the bringing of all the architects in the Kingdom into the R.I.B.A. That meant what it said, even if they had all the architects in the Kingdom in the Institute, &c."

The foregoing is an unauthorised abbreviation of the following passage in my remarks as reported in the R.I.B.A. "Journal." Mr. McArthur Butler said. . . "Scheme A was the bringing of all the architects in the Kingdom into the R.I.B.A. That meant what it said, *he hoped, and they were all going by some means yet to be devised, to be members of the Institute* . . . even if they had all the architects in the Kingdom, &c" The italics are mine, and represent the words deleted from the reprint of my remarks by the officials of the R.I.B.A. Defence League to suit their own ends.

I am credited by the Defence League with having sufficient intelligence in common with others accurately to express my thoughts in words, and I may perhaps be permitted to inquire on what grounds and with what object the representatives of the Defence League deliberately misquote my remarks and therefore misrepresent my views on the main point at issue.—Yours, &c.,

C. MCARTHUR BUTLER, F.C.I.S.,
Secretary.

The Society of Architects,
28 Bedford Square, London, W.C. 1.
April 8, 1922.

"Ad Quadratum."

To the Editor of THE ARCHITECT.

SIR,—In your issue of February 10 a "Mediæval Student" called Mr. Macody Lund a "journalist-author." If this title was meant to imply that he is a nobody or of no social or scientific standing, I should like to state in your valuable journal the following:

Mr. Macody Lund belongs to one of the best and oldest families in Norway, and he has also British blood in his veins. He made his debut as a historical author with a special study on Norwegian mediæval history, which evoked the highest admiration of the prominent historians Professor Yngvar Nielsen and Professor Ebbe Hertzberg, as well as of other scholars who had studied the question. Mr. Macody Lund's book was to them quite a revelation, clearing up a number of abstruse points which previous writers had been unable to understand. On the recommendation of the highest authorities on Norwegian history the Government proposed, and the Storting voted, an annual donation to Mr. Macody Lund in order to enable him to continue his research work. Since that time several other works on mediæval history have emanated from the pen of Mr. Macody Lund continually proving his eminent scientific grasp of elucidating mediæval history.

* * *

Macody Lund took up his studies of the Trondhjem Cathedral long before some of those who now pretend to be authorities had any idea of the task at all. During these researches he discovered the geometrical system on which the cathedral had been built and on which, accordingly, it could, and should, be restored. Testing this system on other famous sacred buildings from antique to mediæval times, he found it was applicable to them, too. He made his researches purely for patriotic and scientific reasons. There have been no selfish motives on his part. He had no small man's vain ambition to defend, he had no personal position to protect. Long before he expounded his researches in public he privately offered the result of them to the men who were in control of the restoration of the Cathedral. He made personal sacrifices of money and time to furnish them with all possible archaelogical and scientific means to perform their task, and it is evident that they benefited by his work, though they have never acknowledged it. Only when they began to make gross mistakes and deliberately moved away from the principle of a consistent historic restoration, which had been the governing idea for the work during half a century or more, he made public the results of his studies in order to save the national shrine from what, in his opinion, was a national sacrilege.

So much for the despicable "journalist-author." The "Mediæval Student" had also a sneering remark about the Norwegian press and public to the effect that the Norwegians were about getting swelled heads over the English appreciations of the Norwegian contribution to the study of mediæval architecture by Mr. Macody Lund. May I state that the Norwegian press has also quoted the criticisms having appeared in England in the same matter. Let me also add in general that we Norwegians are not at all so overawed by foreign opinions on art and science as the "Mediæval Student" seems to think.

* * *

The "Mediæval Student" indicates that the Norwegian Government is liable to ridicule for having given money to the publication of Mr. Macody Lund's theory, which, he alleges, will collapse like a house of cards on closer examination. I think it would have been better for the "student" if he had let us see that easy collapse before he had boasted of it. As far as I can see no collapse has been effected by anybody, though there has been a good deal of Jericho-trumpeting.

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The position of the Norwegian Government is this. The Trondhjem Cathedral was and is one of the masterpieces of mediæval architecture, both as to the conception of its main constructive features and as to its artistic decorations in detail. It is the flower of Norwegian architecture and art.

* * *

During half a century they have made economic sacrifices to have the Cathedral restored to its old historic form. Under the able leadership of the late Mr. Christie the eastern and best-preserved part of the Cathedral was successfully restored on such lines. Mr. Christie was an old man when he had finished that part of his work, and he died before he had finally made his preparations for the far more difficult task to restore the western section of the Cathedral, which section lay entirely in ruins, only some of the lower portions of the walls being preserved. Mr. Christie had all his life reverently adhered to the nation's wish to have the Cathedral restored to its ancient shape. He wished to continue to that idea also with regard to the western section, but here both he and his collaborators were realising the difficulties of the problem and began to feel uncertain. It was in those late years of Mr. Christie's control of the work that Mr. Macody Lund began his special studies of the Cathedral. Despite some adverse criticism by Mr. Lund of the plans of Mr. Christie, the latter was broad-minded enough to listen to the arguments of the younger man, respecting his expert historical knowledge and independent studies of the Cathedral. He even adopted some of his views, and a closer collaboration was about to develop when Mr. Christie died.

There was at that time no architect in Norway who could, without special preparation, take up the task of the dead master. Accordingly the Norwegian Government had no other alternative than to invite the architects to compete in producing a plan for the continued work. The main condition set up was that the plan should aim at restoring the Cathedral on historic lines. A young architect, Mr. Nordhagen, won the first prize. He was inexperienced, and possessed little historical knowledge, but his drawing of a building in gothic style was promising. On that drawing he was made architect for the Cathedral and given the opportunity of further studies. Mr. Macody Lund offered his assistance while all the time continuing his own studies of the subject. How it happened from the first that a collaboration did not come about I cannot say. But, as a matter of fact, their views, which at first seemed to be parallel, diverged more and more, Mr. Macody Lund pursuing his historical line, while Mr. Nordhagen, after some futile attempts at giving his own plans for reconstruction a sort of historic touch, gave way to his modern ideas of a church. At last he declared himself unable to restore on historic lines at all, and proposed a sort of modern church built on the preserved ruins of the western section.

Mr. Nordhagen is no doubt a very able modern architect, and I will not criticise his work. But I have to state as a fact that the public, the nation, did not appreciate his plan even as an artistic production, and were highly disappointed at seeing the historic idea abandoned.

* * *

A less careful Government that the Norwegian would perhaps in these circumstances have decided at once that the historian and the mediæval architect-expert were right, and the modern architect wrong. But the Norwegian Government, though perhaps leaning to the historic view, desired to have an impartial verdict by foreign experts—English, Belgian, and French—before deciding definitely. Accordingly the theory of Macody Lund, as explained in "Ad Quadratum," had to be translated into English and French and published in London and Paris with the support of the State. In my opinion this procedure was loyal to all parties, including prominent foreign architects who were supposed to be interested in a masterpiece of architecture not being irretrievably spoilt. I cannot see what ridicule there is in this loyalty of the Norwegian Government to art and history.

* * *

If it is on such meagre evidence that a remarkable study of sacred buildings is condemned as entirely wrong one must feel pity, not with Mr. Macody Lund, but with such critics.
—Yours, &c., M. M. MJELDE.

[We have had to omit portions of this letter on account of its length, but the writer does not, and cannot, explain why diagrams are given which are obviously incorrect, unless it be to bolster up theories which cannot be proved by the adoption of accurate methods.—ED.]

Beddington and Wallington War Memorial.



The Beddington and Wallington War Memorial is the outcome of a competition in which the design by Mr. Leolin C. Gregory, A.R.I.B.A., was selected for execution by the Hon. Assessors: Mr. W. C. Clifford Smith, F.R.I.B.A., O.B.E., and Mr. J. P. Goodsir, Licentiate R.I.B.A.

The memorial, which stands on Wallington Green, was unveiled on February 26; it is built of the warm brown, coarse-grained stone from Doulting, Somerset. It is about 20 feet high, with bronze panels in the plinth containing the names of those in whose honour it was erected, a panel with dedicatory inscription, and one with two female figures in high relief, suggestive of grief and hope, modelled by Miss C. Gregory, R.B.S. Two bronze wreaths respectively of laurel and olive rest against the base of the obelisk.

Swansea Station is to be remodelled, we understand, by the Great Western Railway Company at a probable outlay of £200,000.

Marylebone Borough Council is being recommended by its committees not to approve the use of the public lamp standards in Oxford Street for illuminated advertisement signs, on the ground that the signs would be regarded as an infringement of public amenities, and would probably not meet with the approbation of traders generally.

The Artists' General Benevolent Institution is holding its annual dinner on May 3 at the Prince's Restaurant, London. The Duke of Connaught will take the chair, and a special effort is being made this year to increase interest in this worthy institution, which is now, owing to the bad times, having its funds severely strained to meet the many cases urgently requiring assistance. Many of these appeals are from artists of reputation in very distressed circumstances.

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The Poster Question Again.

There is an aspect of the poster question with which our leader recently did not deal: the improvement, namely, which an alteration of the law might make in the admittedly unsatisfactory position of public advertisements. The hoarding, though part of the street, comes under no public regulation as regards the posters placed upon it. Why should this be so? A house or shop front has to be passed by the district surveyor, but with the poster he has nothing to do. Yet the hoarding is every whit as much a matter of public interest, since its contents catch the eye more inevitably than any building does, and the public has no remedy as the law at present stands.

Why should not the poster be placed in a given position and made to regulation size? The owner of the hoarding could not complain, since his space would be unaltered and he would have more advertisements, not fewer; the advertiser could not complain, since no rival would have the advantage of him in this respect; the public could not complain, since their eyes would be spared the contemplation of monstrosities in primary colours whose deformity is enhanced by their size. In certain fields of advertising, Underground railway carriages and motor omnibuses for instance, the regulation exists already, since the size of the advertisement is conditioned by the space at the disposal of the advertiser. Moreover, the public expects to see advertisements in certain places, and looks for them, and this is what we mean by the desirability of placing the street or hoarding poster in a given position. The public knows where to look for the name of a road; that name, therefore, need not occupy an inordinately large space. It is position rather than size that matters, and this is a point too often overlooked by the advertiser, whose largest efforts are by no means always his most successful.

But even with this reform the question remains whether an advertiser should have the right to thrust his advertisements upon the sight of all and sundry without paying the public for the privilege. Shops and houses pay their rates; why should not hoardings, objects at least equally conspicuous, pay rates in the shape of an advertisement tax such as has long since been imposed on hoardings on the Continent? "The advertiser," says the admirable article on Advertisement in the Encyclopædia Britannica, "who pays for space upon a hoarding or a wall . . . deliberately violates the wayfarer's mind. . . . An advertiser has no more right to assault the eye in this fashion than to storm the ear by an inordinate din; and a man who came up behind another man in the street, placed his mouth close to the other's ear, and bawled a recommendation of some brand of soap or tobacco, would be regarded as an intolerable disturber of public peace and comfort." While the eye is thus assaulted the least the public has a right to ask for in return is some contribution from the disturber of public amenities, either to the rates or to the Imperial Exchequer, and the sight of a duty stamp at the corner of every poster would be not a little comforting, while it would impose no overwhelming burden on the advertiser, who belongs to a class usually well able to afford the contribution. Obviously such a duty would vary in proportion to the space occupied, a poster in an omnibus or tube lift being at once less expensive and more inoffensive than one of the maximum space permitted on a hoarding.

Newspaper advertisements, as the article already quoted justly says, "ask, but do not compel, attention," whereas "the whole theory of poster advertising is a tyranny." This being so, why should not the tyrant make some compensation to the public over whom he tyrannises? Of course, there would be an outcry should any Chancellor of the Exchequer take his courage in both hands and impose an advertisement tax; but the outcry would be wholly unjustified. People did not cease to employ servants when the Insurance stamp came into force; nor would the advertiser cease to employ advertisements if they already paid him well.

If the space allotted to advertisements upon a single hoarding were limited as we propose various minor improvements might follow, such as the separation of one from another by the use of a black or coloured border of a given width. From the point of view of the artist employed such legislation might even be an improvement, since more posters would be required to fill a given space.

The Advertisements Regulation Act of 1907 was inadequate in that it was solely of a permissive character, allowing the local authority, if it so wishes, to make by-laws dealing with the questions of hoardings and advertisements, which were to be subject to the confirmation of the Home Secretary. Something much more drastic is needed, for the permissive law always tends to become a dead-letter. The Scapa—the National Society for Checking the Abuses of Public Advertising—has done much; what is needed is for its suggestions to take on the force of law, that the public may be protected from the tyranny of the hoarding and get some financial return for the indignity of being forced to look at street advertisements.

As a beginning we may repeat our advice of last week, that the public should refrain from buying wares whose advertisements are offensive or in bad taste, and should state their reasons for doing so to the shopkeeper from whom they buy. The shopkeeper passes the criticism on to the traveller, the traveller to the firm, and if only enough people would take this small amount of trouble the effects would be far-reaching.

But *quis custodiet ipsos custodes?* While Government Departments continue to issue such posters as roused the laughter of the Continent during the War, or excite the wrath of the patriotic public at the present moment, when work and harder work is the urgent need of the day, how can we hope for reform on the part of the commercial advertiser? It is for the taxpayer to show that he resents the one before he can expect to deal with the other. The sooner we begin on both the better, and it is to be hoped that the Bill just introduced by Lord Newton for the extension of the power of local veto to all urban councils, and the power of making by-laws "for regulating, restricting, or preventing the exhibition of advertisements" tending to affect adversely the amenities of landscapes, towns, and villages, may be of value in checking the abuses so prevalent at the present time.

The "Architect" Fifty Years Ago.

April 13, 1872.

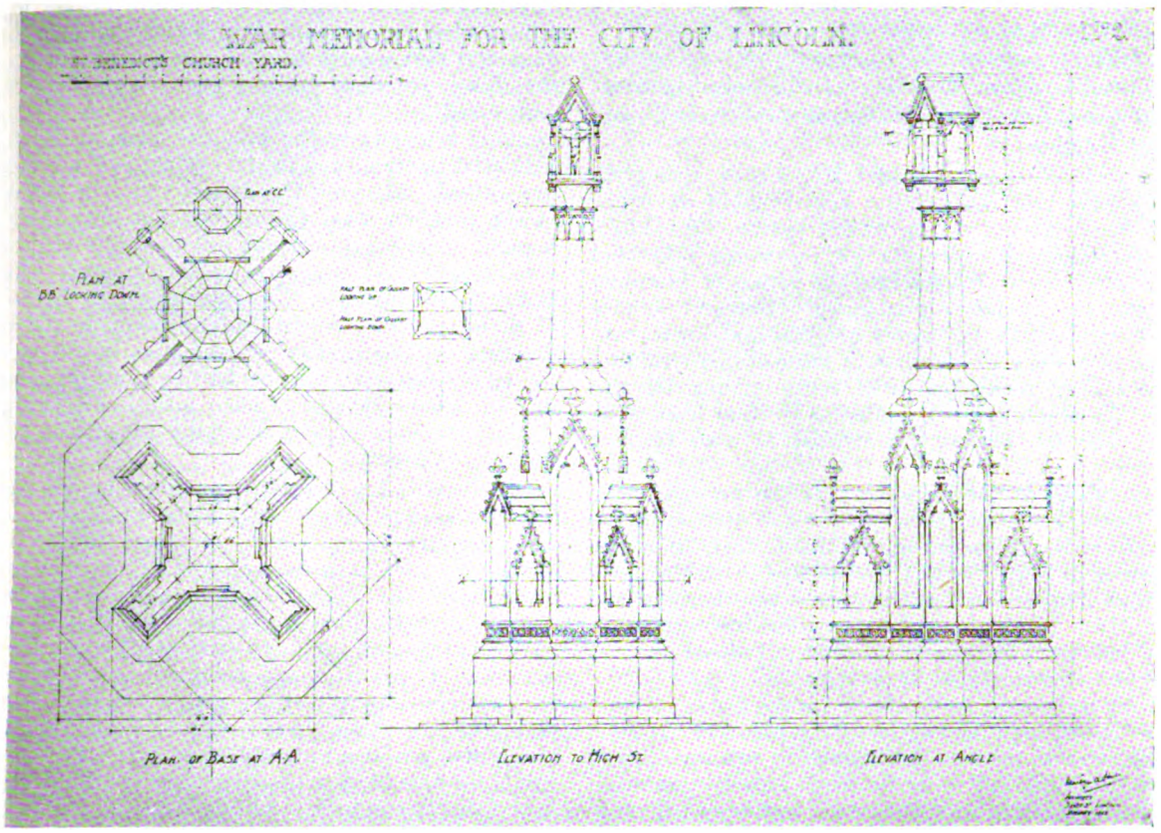
Fund for Building an English Church in Rome.

An English Church is about to be built from the designs of Mr. G. E. Street, R.A., and calculated to hold 800 persons A covered corridor will connect it with the house, the basement of which will contain a large room for the library now existing, and an ample sacristy, where meetings and classes can be held. Mr. Street has chosen the Pointed style proper to Italy, of which he has an extensive knowledge, and for his materials those most available in Rome—brick, with the mullions and tracery of stone. The architect's name is a guarantee for correctness of interior arrangement, and it is hoped that the liberality of fellow-Churchmen at home will enable him to make it a splendid one. The dimensions of the church will be 160 feet by 56 feet externally, 37 feet in height internally, and 79 feet to the battlement of the campanile, which will carry a peal of bells. For these purposes it is desirable to raise 15,000*l*., including the cost of a site, for which some favourable and healthy spot within the city will be chosen. The English Church in Rome is, by its constitution, pledged to carry out the laws of the Prayer Book, and has for many years presented to our countrymen privileges not usually met with on the Continent. There is a double Celebration on all Sundays, one or more on holy-days, and daily prayers during the season. It also maintains an extensive charity in the town. Subscriptions will be received by Messrs. Drummonds, 49 Charing Cross; the Union Bank of London, at its different branches; and Messrs. Maquay, Pakenham & Hooker, Piazza di Spagna, Rome.—*Roman Times.*

Greasborough Council have accepted the transfer of Messrs. Mollekin & Sons, Ltd., Maltby, to build twelve houses at £459 each.

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War Memorial for the City of Lincoln.



The memorial which is being erected on the open space at the east end of St. Benedict's Churchyard, placed in front of the junction of the two end gables of the existing church, being set back from the High Street about 20 ft., takes the form of a type of Gothic Cross, Decorated in style, is octagonal on plan, with four buttresses placed diagonally, and rises to a height of 36 ft. from its base. Below this is a platform 6 in. above the present level of the churchyard, and that being about 2 ft. 6 in. above the High Street level.

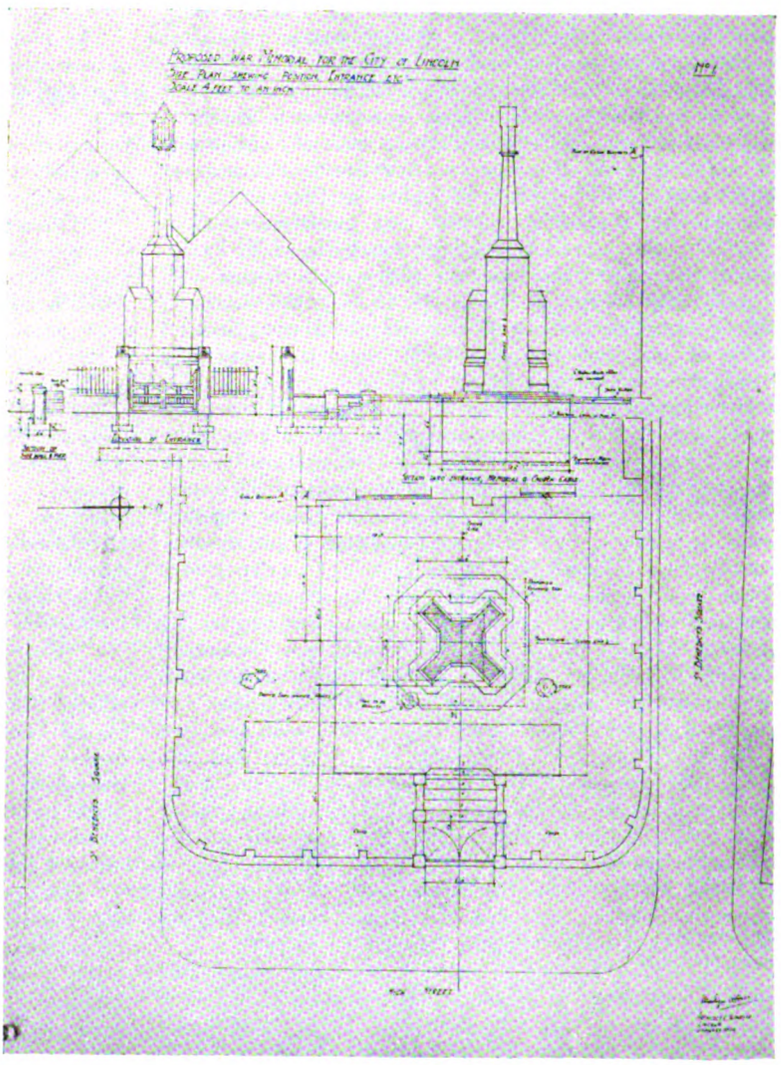
The portion of the churchyard devoted to the memorial will be prepared and laid with York stone paving over its whole area and surrounded by simple dwarf walling in keeping with the church and cross. Access will be by a main entrance from High Street some 8 ft. wide, with iron gates and stone pillars.

The design is after the style of an Eleanor Cross, spire-shaped. At one time Lincoln possessed one of these beautiful crosses on Swine Green, opposite the Gilbertine Priory of St. Catherine.

In addition to the open space, there is an octagonal platform which is 4 ft. wide all round the base of the memorial. The plinth or base of the main shaft is 5 ft. high, richly decorated and suitably weathered.

Having reached a height of 15 ft. 9 in., the main shaft is rapidly reduced by weathered and moulded stones forming a suitable base or socket for the tapering shaft, which carries a Calvary.

The Calvary is square on plan and has angle-buttresses which carry the gables east and west. The front face carries a figure of Our Saviour, while the sides are filled in with tracery.



Ancaster stone is being employed, and the whole of the sculpturing and carving has been entrusted to Messrs. M. Tuttall & Son, sculptors, Lincoln. The architect is Mr. Montagu A. Hall, of Lincoln.

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Industrial Lighting.

At a meeting of the Illuminating Engineering Society, held at the House of the Royal Society of Arts, 18 John Street, Adelphi, London, W.C., recently, Mr. L. Gaster, F.J.I., read a paper entitled "Industrial Lighting: Ideal Requirements (Legislative and otherwise), and Practical Solutions."

It is generally admitted, said Mr. Gaster, that great advances have been made in our knowledge of industrial lighting requirements during recent years. The introduction of simple instruments for measuring illumination has given us an insight into the values of illumination customary in different factories. Researches have been conducted into the causes of glare and its prevention, the best ways of eliminating troublesome shadows, and the special requirements of certain industrial processes. We stand in a very different position from what we did when the Society commenced its work thirteen years ago.

These advances paved the way for the preparation of official recommendations, such as those contained in the first report of the Departmental (Home Office) Committee on Lighting in Factories and Workshops in this country (1915) and supplemented in the second report issued last year (1921). In the United States there are now seven codes of industrial lighting in existence, all based on principles commonly accepted by experts.

The natural course is, firstly, to form some conception of ideal factory lighting; secondly, to see how far such conditions can at present be obtained in practice. Ideal industrial lighting can only be very broadly described. It should be such as to enable work to proceed at night with the same ease and convenience and safety to workers as exist under the best daylight conditions; indeed, in view of the variability of daylight, one might conceivably attain even better conditions in certain cases. General experience, aptly summarised in the reports of the Home Office Departmental Committee, indicates that for ideal requirements there are four main conditions to be satisfied—namely: (*a*) Sufficient illumination; (*b*) constancy and uniformity of illumination over the working area; (*c*) the placing and shading of lights so that no inconvenience and prejudicial effects are experienced from "glare"; (*d*) the placing of lights so as to avoid inconvenient extraneous shadows on the work. There will naturally also be special conditions to be fulfilled arising from the peculiar nature of any industrial process, and a form of illumination that is ideal for one process may be less satisfactory for another.

In order to approach "ideal" requirements we must first be able to define them, and although we have gone some distance in this direction, it will naturally take time before they are completely understood in all industries. The best course is, perhaps, to group together certain industries, having broadly similar requirements, to study them in detail, and to see how far this experience applies in other cases. Hence, the Departmental Committee acted wisely in first concentrating attention on the engineering, clothing, and textile industries. In aiming at securing sufficient light we must distinguish between the illumination necessary in the interests of safety and freedom from accidents, which has already been specified in the Departmental Committee's first report, and the illumination necessary for carrying out efficient work, which is a much more complex matter. Here, again, the Committee dealt with the most urgent and readily practicable problem first. In the American codes it is customary to specify a minimum working illumination for rough, medium, and fine operations, figures ranging from 1-5 foot-candles being mentioned.

The various factors necessary for ideal conditions must be considered *as a whole*. The provision of a very high illumination will not suffice if other prejudicial elements such as glare or troublesome shadows exist. This point has been repeatedly emphasised in the American codes, and one of the latest, that of Oregon, accordingly adopts the practice of putting schedules of illumination at the *end* of the code and a discussion of the other factors at the beginning.

There is thus room for much further study to determine "ideal requirements" in factory lighting. But the mere fact that we can now express our needs and outline the things we have still to learn shows that we have progressed.

It is a tribute to the progress made in the study of industrial lighting, and to the sympathetic and enterprising attitude taken by the Home Office in this country to the problem, that the introduction into the Factory Acts of statutory provision: (*a*) requiring adequate and suitable lighting in general terms in every part of a factory of workshops; (*b*) giving power to the Secretary of State to make Orders defining adequate and suitable illumination, has already received attention. Very wisely, the authorities have been content to await public recognition of the desirability of such measures before making this recommendation—to follow the principle of "Government by Consent."

Needless to say, legislative measures require very careful consideration, and one might justly hesitate to legislate on many matters, on which recommendations can confidently be made. Any form of "code" must be such that it can readily be enforced by those charged with the duty, and will actually prevent the most serious abuse of industrial lighting, and yet impose no hardship on the manufacturer. If too exact and detailed it becomes difficult to enforce intelligently and becomes a source of annoyance to the manufacturer; if too vaguely worded its interpretation may give rise to troublesome differences of opinion. One's aim should be to produce measures which are necessary alike to employer and employee, as being for their benefit and which aid the manager in his duty of providing proper illumination. Above all it is desirable that official information should be generally understood.

As mentioned above, the first report of this Committee recommended certain values of illumination, ranging from 0.05 foot-candles in open places up to 0.4 foot-candles in foundries, as desirable in the interests of convenience and safety, in view of the relation clearly established between inadequate illumination and the prevalence of accidents. The question of "working illumination" has not yet been completely dealt with, although it is understood that much useful information has been compiled, and that suitable values will be ultimately agreed upon by consultation with the representatives of the industries concerned. This is, again, in accordance with the wise policy of "Government by Consent."

The second report makes general recommendations on "shadow" and "constancy"—namely, that "adequate means shall be taken to prevent the formation of shadows which interfere with the safety or efficiency of any person present"; and that "no light sources which flicker or undergo abrupt changes in candlepower in such a way as to interfere with the safety or efficiency of any person employed shall be used for the illumination of a factory or workshop." It also contains the following recommendation on the avoidance of glare:

"Every light source (except one of low brightness) within a distance of 100 feet from any person shall be so shaded from such person that no part of the filament, mantle, or flame is distinguishable through the shade, unless it be so placed that the angle between the line from the eye to an unshaded part of the source and a horizontal plane is not less than 20°, or in the case of any person employed at a distance of 6 feet or less from the source not less than 30°.

The application of this recommendation would doubtless remove the worst examples of glare. Yet it imposes no hardship, as it can readily be complied with in various ways. Thus sources adequately shaded by diffusing glass or vitreosil glassware could be used anywhere in a workroom. Reflectors, with a "cutting-off" angle of 20°, could also be used in practically any position. Even lighting units with a mantle or filament located below the edge of the reflector can be used high up provided they fall outside the specified 20° angle.

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The recommendation does not attempt to impose ideal conditions. It is a compromise but should have a salutary effect.

Statutory regulations on industrial lighting should be supplemented by unofficial action by societies which can devote themselves to emphasising the economic as well as the hygienic aspects of industrial lighting. Many bodies could render valuable aid, and the British Industrial Safety First Association is already doing so. The American I.E.S. Code is revised by a joint committee in which the chief engineering bodies, Government Departments, &c., participate, and a leading part is taken by the American Engineering Standards Committee.

Detailed information on the best methods of lighting for various industrial processes are best arrived at by conference and research with representatives of the industries concerned, in which both employers and employees should take part. A precedent in this direction is set by the valuable work of the Industrial Fatigue Research Board, whose second annual report contains a section emphasising the influence of good illumination on output, as illustrated by researches in the silk industry.

Industrial lighting is now receiving attention in various countries, and interchange of views is most desirable, in order that any recommendations may be based on commonly accepted general principles. A useful step in this direction was taken by the appointment, at the first technical session of the International Illumination Commission last year, of an international technical committee to review the whole subject. Ultimately it is to be hoped that an "International Code" on industrial lighting may be framed. It is also of interest to mention that this question is receiving attention from the Section of Industrial Hygiene of the International Labour Office established by the League of Nations at Geneva. Prof. L. Carrozzi is associated with this work.

Royal Institute of British Architects.

The following are notes from the minutes of the R.I.B.A. Council Meeting held on April 3:—

The Civic Survey of Greater London.—It was decided to approach the London County Council and endeavour to arrange for the continuance of the work of the Civic Survey for Greater London as a means of providing employment for architects during the present period of depression.

The Metropolitan Water Board.—Mr. H. W. Burrows (A) was appointed as representative of the Royal Institute to confer with a sub-committee of the Water Board on the revision of the regulations for the prevention of waste, misuse, undue consumption, or contamination of water.

The Royal Institute of the Architects of Western Australia Incorporated.—The amended constitution of this Allied Society carrying with it the use of the title "Royal" was approved under provisions of By-Law 79.

The Building Trades' Parliament.—Mr. H. D. Searles-Wood was appointed to represent the Royal Institute on the Building Trades' Parliament.

Membership.—The applications of ten candidates for the Fellowship, and twenty-four candidates for the Associateship were approved.

Reinstatement.—Mr. C. F. Ward (F), and Mr. J. Hardwick Higgs (Licentiate), were reinstated.

The following resolution from the Wexford Rural District Council has been forwarded to the Blackrock Urban Council:—"That we call upon all public bodies to boycott the English manufactured cement, and purchase German cement, until the Drinagh Cement Works, Wexford, have been re-opened. That a copy of this resolution be furnished to the managing director, Associated Portland Cement Co., Lloyd's Avenue, London, E.C., the Irish County Council, General Council Cork Industrial Development Association, and all public bodies in Ireland; that the latter be requested to do all in their power to see that the terms of this resolution are put in force.

Sir Aston Webb on Illuminated Street Signs.

Within the last few weeks overtures have been made to the centrally situated London borough councils and several provincial councils for permission to erect illuminated-advertisement signs on the lamp standards in main thoroughfares. In London the proposal has already been definitely rejected by Paddington, Marylebone, and the City of Westminster. Contrary to expectation, the Works and Improvement Committees of the Kensington Borough Council this week recommended that the proposal be accepted in principle and that detailed negotiations be commenced.

Speaking against this recommendation, Sir Aston Webb, P.R.A., said that practically the only reason advanced by the Committees for entertaining such a scheme was that it would bring in "a substantial revenue." In his opinion, any attempt to lower the rates at the expense of the appearance of the streets would be a most unfortunate thing. Moreover, it would be extremely unfair to any tradesman to have the advertisement of an opposition firm staring him daily in the face. If by way of retort he covered his shop-front with advertisements disparaging the commodities advertised on the lamp standards, nobody could blame him.

Even the pavements in London were not immune. In one main thoroughfare an advertisement was projected from a shop window across the footway through a lantern. Before long people would probably find themselves walking over blouses and corsets, and all manner of things, similarly projected on to the pavement.

The proposal for illuminated signs on electric-lamp standards was only the thin end of the wedge. In course of time gas lamp-posts, which at present were regarded by the Committee as unsuitable, would be requisitioned. If such a policy were pursued, the top of Kensington Town Hall and the spires of local churches would make splendid places for revolving signs. But, in his opinion, Piccadilly Circus at night, with its flashing signs, presented a spectacle which no other borough would be anxious to emulate.

"There is," said Sir Aston Webb in conclusion, "such a thing as *noblesse oblige*. We are a Royal Borough and Queen Victoria was born here and lived here. I should like to know what Thackeray or Charles Kean would say to this proposal? I think they would have tried to put a stop to it. Gorgeous Leighton and splendid Millais, and many others, would stir in their graves if they thought we were going to deface our streets in this manner. I hope we shall think twice before we commit what I really call an outrage in the streets of Kensington." (Applause.)

The recommendation of the Joint Committee was referred back, and the proposal is thus at least temporarily scotched in Kensington.

Competition News.

Members of the Society of Architects are requested not to take part in the Newport (Mon) War Memorial Competition without first ascertaining from the Society that the conditions have been approved by the Council.

Mr. John Black Hector, Lic.R.I.B.A., acting hon. general secretary of the Architects' and Surveyors' Assistants' Professional Union, who died on March 31 after a very short illness, was buried at Loughton Cemetery on the 5th inst. The Executive Council ask us to state that all communications for the Union should meanwhile be addressed to the Assistant Secretary, Miss Thompson, at 36 Victoria Street, S.W. 1.

An official start was made with the Newark sewerage scheme on March 30, the Mayor cutting the first sod. The scheme has now passed the Ministry of Health subject to details and a grant obtained of 65 per cent. of the interest on £25,000 for fifteen years. The scheme is estimated to cost £55,000. Messrs. W. H. Radford & Son, of Nottingham, are the engineers. Mr. J. W. Hipwood, A.M.I.C.E., borough engineer, of Newark, has assisted them to prepare the scheme.

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The Reopening of Drury Lane.

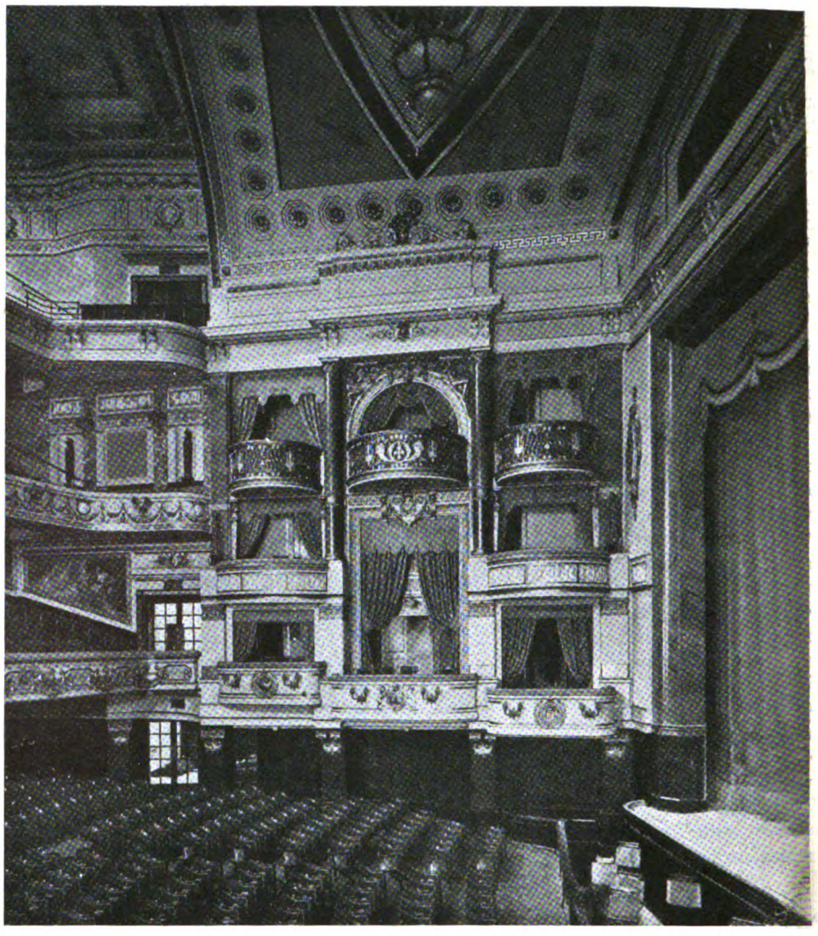
THE first theatre on the site of the present building was opened in 1663 by the King's Company, under Thomas Kelligrew, with Beaumont and Fletcher's play of "The Humorous Lieutenant," and its cost is said to have been £1,500; this house was burnt down in 1672. A new theatre was said to have been designed by Sir Christopher Wren at a cost of £4,000; it is described by Dryden as "plain built" and "a bare convenience only," with "a mean, ungilded stage"; it was opened in 1674. A third theatre was built in 1794, and is described as being very beautiful, and neither too large for sight or hearing. This was destroyed by fire in 1809, the lurid glare of the flames being visible inside the House of Commons, which was then sitting. Sheridan, a principal shareholder, said "that whatever might be the extent of the present calamity he hoped it would not interfere with the public business of the country."

Benjamin Wyatt was the architect of the fourth theatre, the fire and the subsequent advertisement of the Committee for a prologue giving rise to the well-known parodies of James and Horace Smith, published under the title of "Rejected Addresses."

Drury Lane Theatre, though not in Drury Lane, derives its name from the Cockpit Theatre in Drury Lane, in which Kelligrew acted before he removed to the present site. This first Drury Lane Theatre was often described as the Theatre in Covent Garden. The work has been carried out under the direction of the architects, Messrs. Walker & Jones, and Mr. R. Crombie.

It has involved the removal of the heavy circular walls round the Auditorium, and replacing of the four tiers by three wider ones. Together with the decorative scheme it has cost £150,000, or about the same amount which was spent in building the theatre in 1812.

Throughout the house the carpets are heavy pile Wilton,



[Photo: Bedford Lemere.

DRURY LANE: THE SIDE OF THE HOUSE.



[Photo: Bedford Lemere.

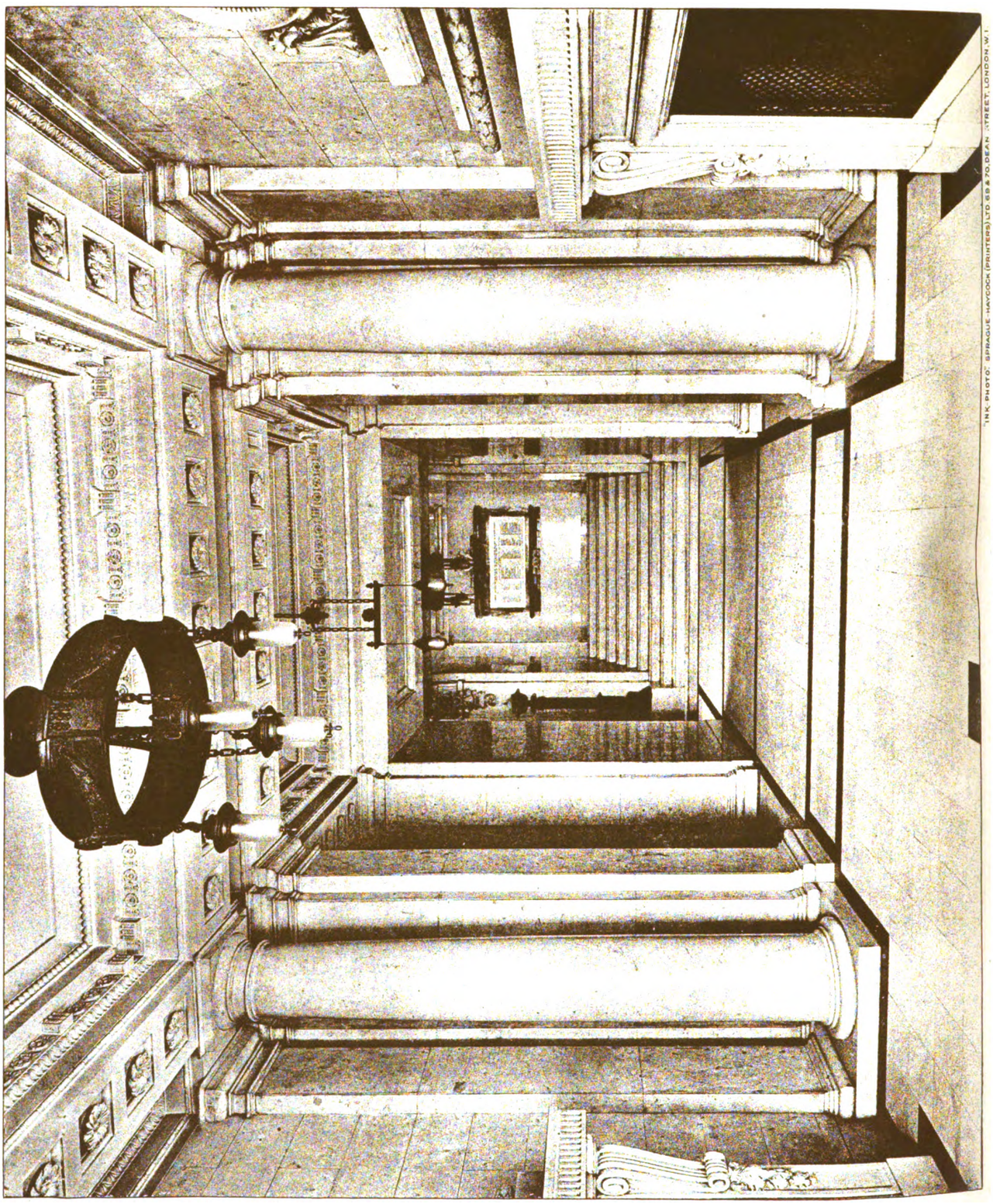
DRURY LANE: THE GRAND SALOON.

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ENTRANCE HALL AT MARYLEBONE TOWN HALL SHOWING POSITION OF WAR MEMORIAL UPON STAIRCASE.

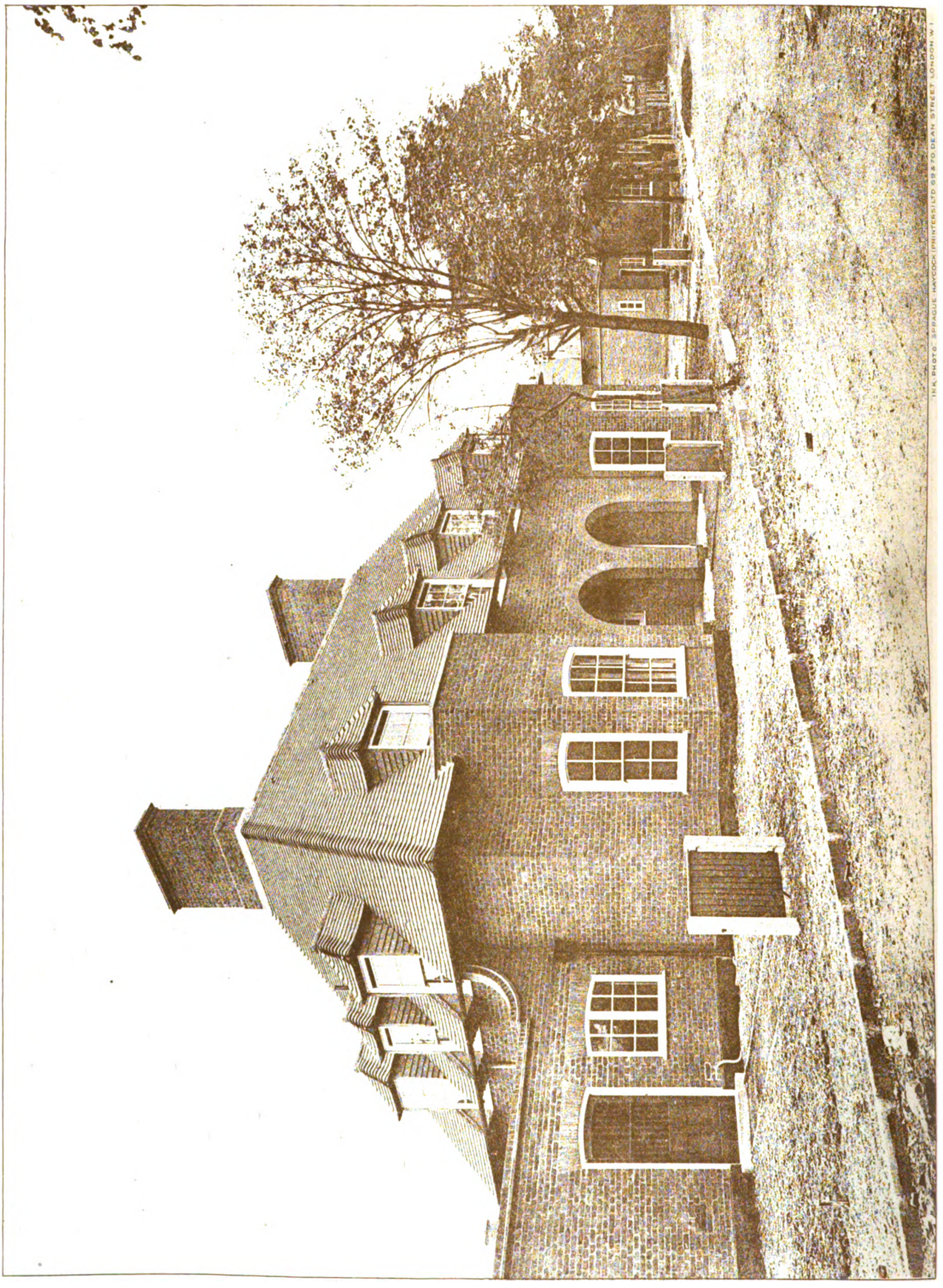
"INK PHOTO" SPRAGUE-HAYCOCK (PRINTERS) LTD. 69 & 70, DEAN STREET, LONDON, W.1

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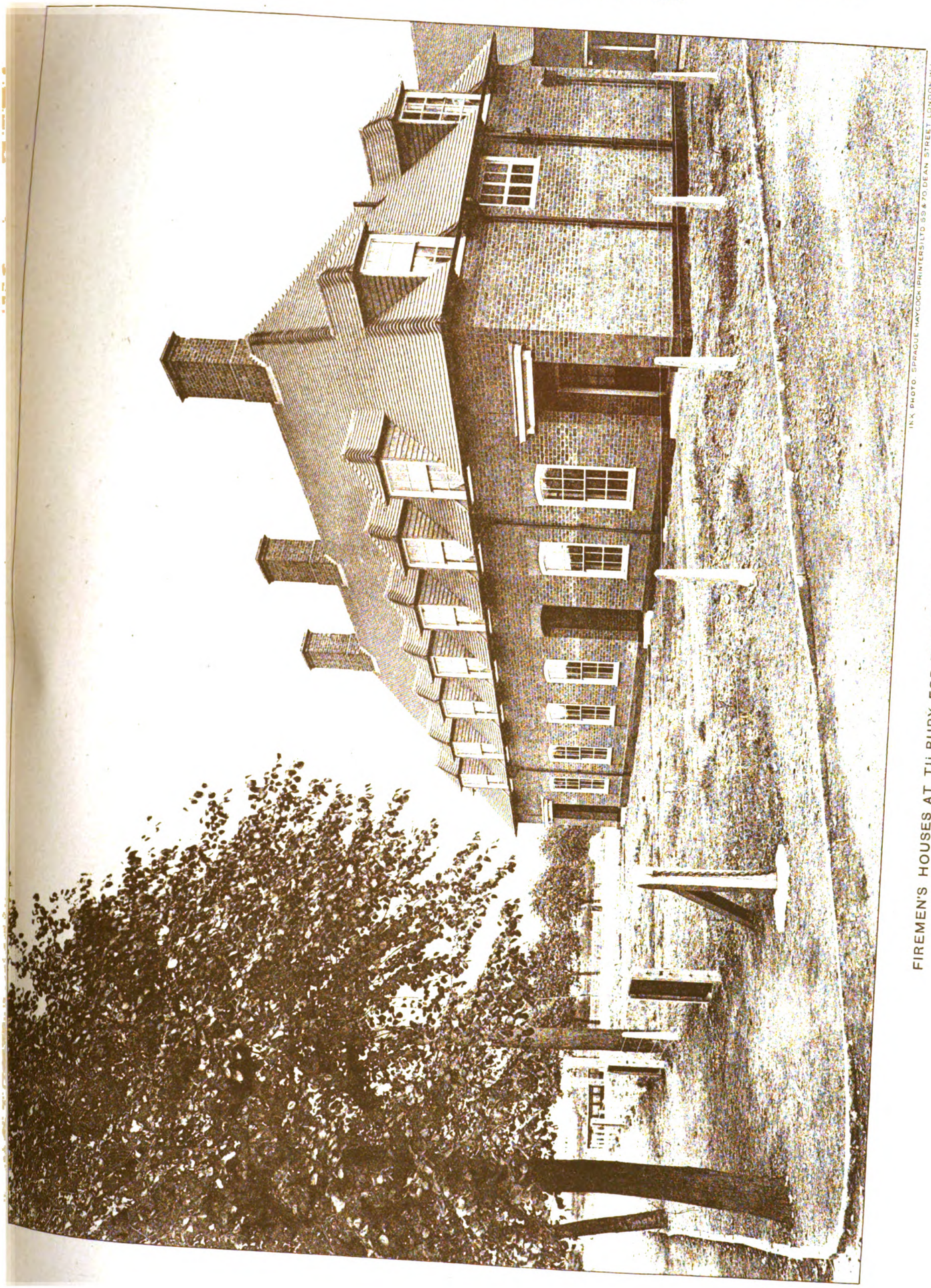


POLICE HOUSES AT TILBURY FOR THE PORT OF LONDON AUTHORITY.

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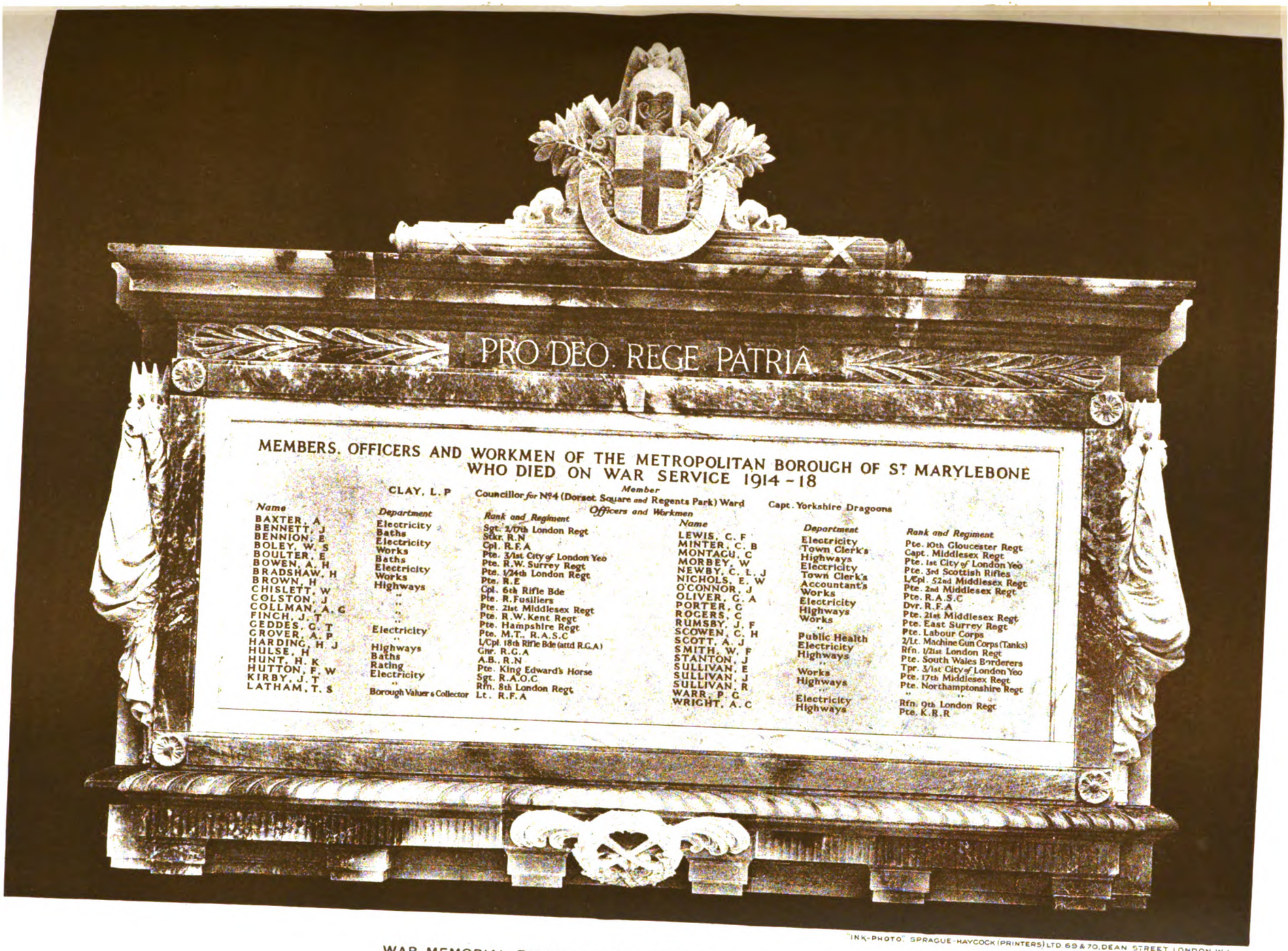
FIREMEN'S HOUSES AT TILBURY FOR THE PORT OF LONDON AUTHORITY.
EDWIN COOPER, ARCHITECT.

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INK-PHOTO: SPRAGUE-HAYCOCK (PRINTERS) LTD 69 & 70, DEAN STREET, LONDON, W.1.

WAR MEMORIAL FOR THE MARYLEBONE BOROUGH COUNCIL.

EDWIN COOPER, ARCHITECT.

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FIRE STATION WITH FIREMEN'S COTTAGES
EDW

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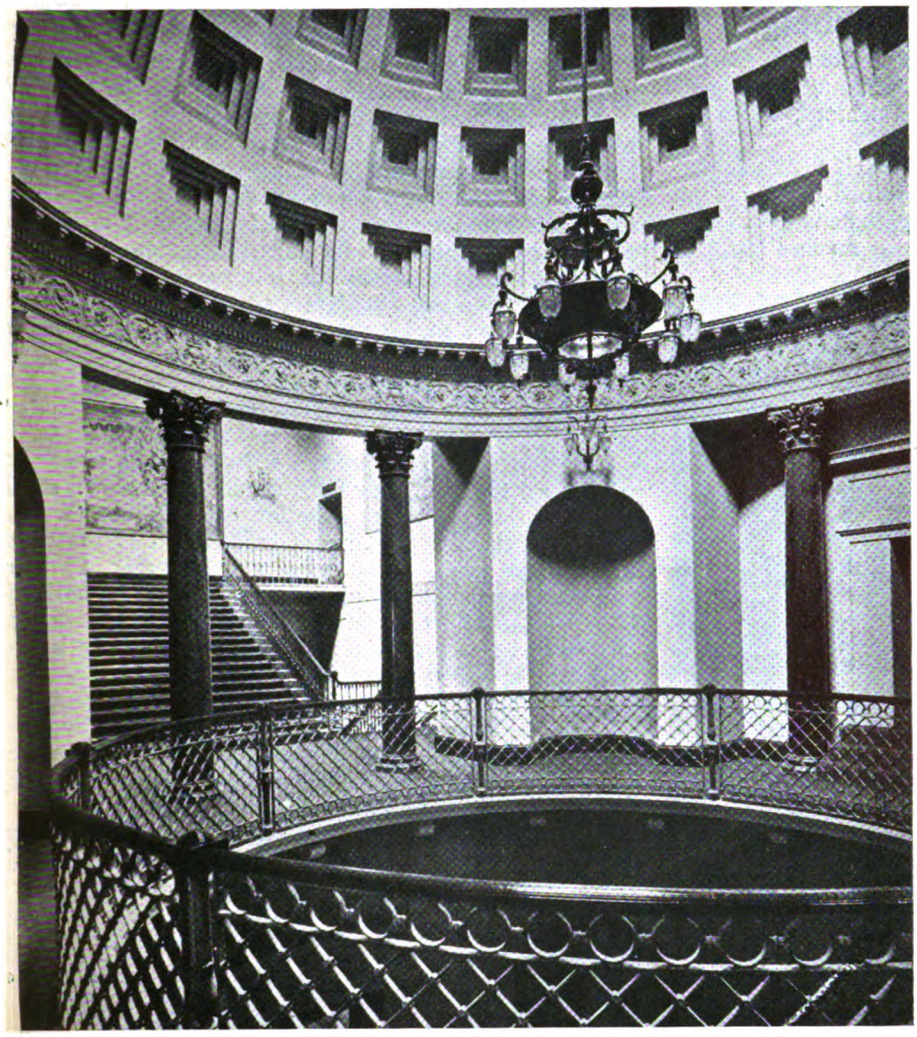
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BURY FOR THE PORT OF LONDON AUTHORITY.
ARCHITECT.

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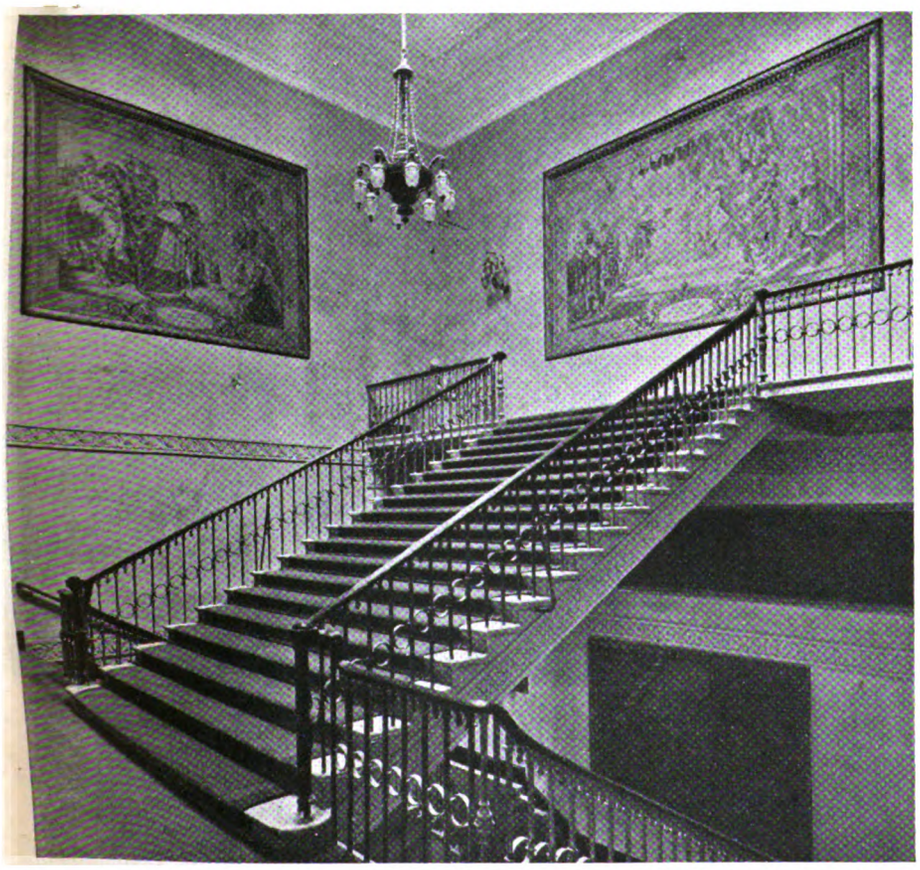
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[Photo : Bedford Lemere.

DRURY LANE: THE ROTUNDA.



[Photo : Bedford Lemere.

DRURY LANE: THE GRAND STAIRCASE.

of a shade of petunia. The other dominating colours of the scheme are pearl-grey, relieved with Italian pink and Wedgwood blue, in combination with bronze gilt in the carved and modelled enrichments. The walls of the Foyer have been redecorated with imitation French stuc and fitted with new mahogany box-offices, and from it the Rotunda is entered, the columns of which are treated to resemble lapis lazuli; the panels of the dome being treated in shaded tones of grey and blue. From the Rotunda the well-known staircase is approached, and its walls are hung with paintings by Romney and other old masters. The Grand Saloon has been redecorated in tones of beige and gold.

In the Auditorium the Royal Box has been brightened and embellished with the Royal Arms. The fronts of the boxes are decorated with a series of modelled plaques after Flaxman, representing the Muses, and carried out in white on a ground of Wedgwood blue. The Proscenium arch has a base of black marble relieved by bands of Sienna marble; the mouldings of the arch are again coloured to represent lapis lazuli.

Mr. Adrian Collins has been employed as consulting engineer; Mr. C. J. Hyde was the general contractor; and among the various firms employed on the work are the following:—

Herbert Mather, electrical installation; Moreland, Hayne & Co., steel work; F. De Jong & Co., Ltd., fibrous plaster; J. Jeffreys & Co., Ltd., heating and ventilating plant; Hampton & Sons, Ltd., decorations, carpets, and draperies; M. Stephany, seats and furniture; General Electric Co., Ltd., electrical fittings; Merryweather & Sons, Ltd., safety fire curtain and fire hydrants; Mather & Platt, Ltd., automatic sprinklers; Stitson, White & Co., sanitary fittings, drainage, etc.; Sturtevant Engineering Co., Ltd., vacuum cleaning plant; D. Bianco & Sons, joinery; Chas. Walker & Co., marble work; Bullivant Engineering Co., scenery gear; Acme Flooring and Paving Co., Ltd., stalls and pit flooring; Wainwright & Waring, Ltd., ornamental railings; The Reliance Telephone Co., Ltd., house telephones; Excel Asphalte Co., Ltd., roofing; Self-Sentering Expanded Metal Works, floors and trussit for walls.

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Straw Reed for Thatching.

A demonstration of the Isaac Reed Comber, the product of Messrs. W. Isaac & Sons, of Braunton, was given under good weather conditions at Rochford, Essex, on March 31.

The Reed Comber is a threshing-machine attachment, which converts sheaves of wheat by one operation into clean unbroken reeds suitable for thatching dwelling-houses, farm buildings, or stacks: it finishes the grain



The Isaac Reed Comber fixed on threshing machine, finished reed coming down the conveyor.

for the market, and separates the combings and broken straw, which are valuable for feed for cattle. This is the first machine of its kind that has been seen in the East of England; Mr. E. J. Halsey, of Rochford, is charged by the manufacturers with its introduction into Great Britain, except in the Western Counties, where it is already known.

Among those present at the demonstration was Mr. Thompson Close, of the machinery branch of the Ministry of Agriculture (who are taking a keen interest in the matter), and who also represented the Ministry of Health, who see in the production of improved straw reed a cheap roof-covering for dwelling-houses in rural districts.

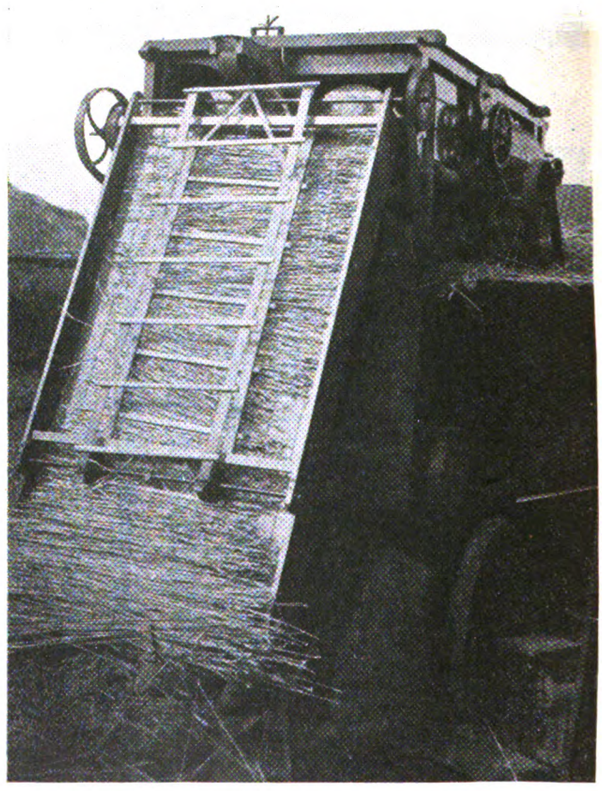
The Reed Comber, which can be fitted to any standard make finishing machine, is constructed as an independent unit, and measures approximately 5 feet in the clear, 8 feet long, and about 3 feet 10 inches high. It is well framed together, and can be lifted on or off the threshing machine, no alteration being required to the thresher beyond removing the ordinary feed-board and guard over the drum mouth. It is held in position by four bolts through the outer sills, and the machine can either be used as a reed comber and thresher combined or as a thresher only. The machine is sent out with all the necessary belting and two extension pulleys, which are bolted up, one on the driving pulley of thresher, which drives three of the combing drums, the other pulley being bolted to the outer pulley on the opposite side, which imparts motion to the feed-rolls and canvas.

The Comber was seen at work attached to a 5-ft. Clayton & Shuttleworth threshing-machine, and certainly justified the claims advanced as to the beautifully fine, strong sheaves of reed it turned out. The sheaves are taken from the stack and placed on an inclined board and fed in between two endless revolving belts, which work round a series of rollers that hold the straw, while spiked revolving drums act on both ends that project beyond the belts. On the left is the drum that threshes the grain from the ears, whilst on the right is the larger drum that thoroughly cleans the flag and rubbish from the butt ends. These frames are both placed for holding grain, of which there are four, two on either side of the centre of the machine. After the grain has passed through the first pair of frames, it passes on to the pair that are situated on the opposite side of the centre, with the result that the portion that was previously being held between the belts is now acted on by another comber of larger diameter, the butt ends being finished off by another drum on the other side. Provision is made so that any loss of reed shall not take place whilst changing from one set of frames to the other, by arranging to overlap the two under frames. The reed, after leaving the second set of frames, being finished, is brought down through a conveyor to a receptacle, where it is tied up in the most suitable size for its requirements. The reed is now thoroughly clean from all side-growth and unbroken. The waste products from the stalks, also the grain, are thrown by the combers on to a revolving canvas, which is fitted to the bottom of the comber, and this carries all that has to be dealt with by the thresher to the threshing drum, and is then dealt with in the ordinary way.

Reed made by this process is free from bruises, and when used for a covering for a dwelling-house will stand the ravages of the atmosphere for at least a quarter of a century without repair, and provides one of the most comfortable roofs, as the house will be warm in winter and cool in summer. The danger of fire can be obviated by the use of a chemical solution into which the reeds are steeped at the time of thatching, which may be renewed by spraying after three or four years' wear. The cost of roofing, it is claimed, is in this way reduced by one-half, compared with tile and slate roofs, taking the woodwork into account. There is also a strong economic factor in the use of the combings for feed for cattle, which is prevalent in the western counties.

Some idea of the amount of corn dealt with in a day is testified to by a farmer, who says that he has combed forty quarters of grain and finished it fit for the market.

The great object to be attained, however, is an increased market for the reed, which it is hoped will be



View of finished reed in the conveyor of the Reed Comber machine at rest.

created in rural districts. Mr. E. J. Halsey will be glad to supply intending users with information.

It should be emphasised that the reed-combing attachment does not in any way prevent the thresher being used as a thresher only, and machine owners will fully appreciate being able to use it either as a comber or as a thresher.

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The Building Trades Exhibition at Olympia—II.

The Exhibition at Olympia was formally opened on Tuesday last by Mr. Paul Waterhouse, President of the R.I.B.A., M.A., F.S.A.

Mr. H. Greville Montgomery, before calling upon Mr. Waterhouse, explained that this was the third of a series held since the War. At its close they would revert to the previous biennial arrangement. One of the technical papers had expressed regret that the Building Exhibition should follow so closely on the heels of an exhibition of similar character held in the same place. But really the two were quite dissimilar There were now no stalls selling chickens, perambulators, or blankets. This exhibition was a serious one, and not run as a great advertising stunt. In these days there must be specialised shows. Mr. Montgomery then said that when he started the present series some twenty-seven years ago he adopted a certain policy, and had stuck to it ever since. To-day every inch of the hall had been filled, and every single exhibit appertained to the building industry. So long as he continued to receive support he hoped to persevere in that policy.

Mr. Paul Waterhouse said it was a great pleasure, a great honour, and a great interest to declare the exhibition open. His was, of course, an extremely insignificant performance, and might best be compared to a Jack-in-the-box; for no credit was due to the man who released the woolly-headed monster, but all the credit should go to the man who put it in the box. The exhibition habit had grown in recent years; he personally was convinced it was an excellent habit. An opportunity was thereby provided for firms to bring their goods before the profession, and for the profession to discuss them with the people who knew most about them. Referring to the prospects of the moment, Mr. Waterhouse said it was a time of hope coming after many sad days. He believed building was coming into its own. The exhibition was an Easter egg, and was called an "Easter" egg because it would not last till Whitsuntide—from a different cause a breakfast egg was called a breakfast egg because it would not last till lunch. An architect's practice in London brought a man into contact with those who do the hard work. Nothing was more delightful than to make friends with these men, instead of having mere business relationship. It seemed right an architect should be the one to wish this exhibition prosperity and success. They should all remember Mr. Montgomery and his brother, who had worked so hard.

Mr. A. J. Forsdike, Vice-President of the National Federation of Building Trade Employers of Great Britain and Ireland, proposed a vote of thanks to Mr. Waterhouse, in the absence in Ireland of Mr. Jno. Good, D.L., J.P., the President. Before doing so he congratulated Mr. Montgomery on having got together a most excellent exhibition. It was very fitting that Mr. Waterhouse should perform such an opening ceremony, for his name was a household word all over the country for the work he had done. The interests of architect and builder were very closely allied. A very great improvement was being looked forward to in the trade. One section of it had undoubtedly had a good time—viz., that concerned with the production "of houses for the working classes." But that activity had come to an end. Working-class houses must be produced for considerably less money. An exhibition of the present sort served to show the various methods of construction, and there might be in it some invention which would help to cheapen construction. But to get houses down to a price that people can pay there must be a joining-up of all the forces. If any one section refuses to come into line that work will be rendered the more difficult.

Mr. H. J. C. Johnston, President of the Institute of Clayworkers, in seconding the vote of thanks, said nobody in the trade could forget the great debt of gratitude they owed to the late Mr. Alfred Waterhouse, whose use of clay products in this country had had far-reaching effects. It was a happy coincidence that during the Presidency of Mr. Paul Waterhouse the Royal Institute of British Architects should inaugurate a colour competition in which clay products would be an important feature. Much had been done for industry by means of collective propaganda. Undoubtedly the best propaganda of all was quality. There had been recently some criticism of clay products. On investigation it was found that the makers of those faulty bricks were not craftsmen, but men who had just come into the trade because they thought there was money in it.

The vote of thanks was passed by acclamation.

Mr. Waterhouse responded by wishing "Good Luck to the Exhibition."

Some of the Stands.

The Art Metal Equipment Company, Limited, 186-188 Shaftesbury Avenue, W.C., have set themselves out to show that no matter what kind of a building is in use or contemplation all the necessary fittings can be made in steel. Steelwork protects property from fire, saves twenty per cent. of space over wood, is clean, does not warp or crack, is easily packed for transit, being quickly demountable, can be finished in plain stoved enamel, or grained to match any existing wood, or embellished with bronze ornamentation. The material used in construction by this firm is of the finest, being hydraulically stretched flattened special steel, entirely free from scale and buckle, thus ensuring a perfect surface, to which is applied by a patent process, a new elastic stoved enamel, which does not chip, scale or scratch, making the product almost everlasting. On Stand 133 G there will be seen steel doors of many types, rolling shutters, filing cabinets, whose drawers slide on ball-bearings, library stacks, lockers, and cupboards. A steel desk occupies the centre of the stand, and proves the fine adaptability of steel construction to this type of office furniture.

Boulton & Paul, Ltd. (Norwich, and 135-137 Queen Victoria Street, E.C.) exhibit on Stand 179, Row J, joinery and office furniture which is manufactured by mass production. Their Norwich works were reorganised after their very considerable extensions during the war, so as to obtain the utmost benefit from scientific management. The workshop in which the standardised joinery is manufactured covers two acres, and is equipped with most complete machinery. Another feature of this stand will be the Chaine-Helice patent liquid elevators for water or liquid manure. The apparatus accomplishes its object without the use of pipes, valves, buckets, or any of the other mechanisms which hydraulic engineers are familiar with. In the Chaine-Helice apparatus, the endless chain is surrounded by coils of wire, which move with the chain. When rotary motion is given to an overhead grooved pulley, either by hand or power application, the suspended spiral chain ascends filled with water on one side, the water being held in the chain by a force not hitherto used for liquid elevation.

British Fibrocement Works, Ltd., is an all-British company with British capital, whose head office and works are at Erith, Kent, where are manufactured "Fibrent" asbestos-cement slates and flat and corrugated sheets for all roofing and partition work. Their fine Stand 134 G has been designed to illustrate their many asbestos-cement manufactures. On the slopes of the roof, for instance, are "Fibrent" diagonal slates in red and natural grey, blue-black Duchess slates (where a straight pattern is preferred to a diagonal), scalloped slates on the small tower, and "Fibrent" corrugated sheeting in natural grey. All "Fibrent" slates are manufactured in grey, blue-black, red or purple colours. The external treatment shows the use alternatively of "Fibrent" flat and corrugated sheets. The west end shows a half-timbered finish. The interior shows the use of flat sheeting and the several finishing methods which are generally adopted. The east walls show the use of "Fibrent" ribbed sheets and the method of fixing with rebated joint. Flat sheets ¼-in. thick are used in the floor, fixed direct to joists.

British Roofing Co., Ltd. (150 Southampton Row, W.C.), have built up Stand 60, Row D, to show off "Alligator" asbestic slates and asbestos cement sheets. The interior gives an idea of how effective the sheets may be for walls and ceilings when painted, distempered or enamelled. The slates, which are $\frac{11}{64}$ in. thick, are sent out ready cut and holed according to the style of roofing and overlap required. For factories or where conditions are particularly injurious, the company have "Alligator" asebstic corrugated sheets.

Brown & Tawse, Ltd. (3 London Wall Buildings, E.C.), the iron and steel merchants, are represented by their Reinforced Concrete Materials Department at the Stand in the Gallery, Bay 20. Our readers do not need to be told that "B. and T." reinforcement is applicable equally to roads and buildings. "B. and T." mesh reinforcement is manufactured from square twisted wires, the cross wires being interwoven with the longitudinal wires or tension members in such a way that the latter are held in position by the natural lock created by the twisting of the material. It is stocked in flat sheets 20 feet by 5 feet and 20 feet by 6 feet, but can be made in any length or width required. The sheets are easily joined by a patented system of locking wires, and can be bent and shaped to suit the job. It is claimed that the system will give the greatest efficiency at

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a lower cost than plain mild steel bars, when the cost of laying in correct position is taken into consideration. The firm manufacture "B. and T." pile frames either on the job or at their works, according to the size of the contract.

Building Products Ltd., 44-46 King's Road, Sloane Square, S.W., are specialists in sound-deadening and heat insulation, and in all auxiliaries for concrete structures. Cabot's heat and sound insulating quilt is the special exhibit on Stand 59, Row D, and the method chosen of demonstrating the remarkable properties of this material is the very practical one of building half the stand as a sound-deadened room. The contrast of stepping out of the general babel of noise of the Exhibition into the absolute quiet of the insulated room is very striking. The novelty of the demonstration, combined with the design of the stand (Mr. J. Crowe, A.R.I.B.A., is, we understand, the architect), will attract considerable attention. The quilt is a resilient matting of cured eel-grass. The latter has a tough flat fibre that forms thousands of dead-air spaces, and the most searching tests have proved it to be a most reliable insulating material. Messrs. Building Products Ltd. point out that eel-grass, which grows in the sea, is composed of silicon in place of the carbon which exists in plants, and will not rot or harbour insects or vermin, and will not burn. They exhibit an exhaustive list of buildings in which it has been used, ranging from a fourteen-storey block of flats in New York to Antarctic exploration huts near the South Pole. Messrs. Building Products Ltd. also exhibit their well-known concrete auxiliary specialities.

George M. Callender and Company, Limited, 25 Victoria Street, S.W., again provide an aquatic interest to the Exhibition in the form of their usual model reservoir, whose sloping sides are lined throughout with "Callendrite" pure bitumen sheeting, and with an island of loose bricks rising out of the centre of the water to demonstrate the imperviousness of "Callendrite" dampcourse for foundations. The company also sell another type of dampcourse, which, as its name "Ledkore" suggests, is composed of a core of sheet lead with a special bitumen covering on both sides. Their other goods include "Protex," for keeping walls dry; "Bitusol" paint for iron and steel work; "Veribest" Ready Roofing, prepared from pure refined bitumen; "Bitufelt" Roofing, made from wool-felt, saturated and coated with pure bitumen; "Rooferite" Felt, Bituline insulating paper; "Bitubond" Composition for cavity walling, and "Plastaleke" Asbestic-Bitumen Cement (Stand No. 65, Row D).

Carter & Co., Ltd., of Poole, Dorset, have on Stand 101, Row F, an attractive exhibit of all classes of tile products so arranged that all the constituent parts have some bearing on one another producing a homogeneous and pleasing effect. The exhibit includes suggestions for interior wall tiling in dull surface tiles. A series of new glazes which have more variations of tone and a more interesting quality than ordinary matt surface enamels, and fireplace plinth, cornice and pilasters in "Stoneware" are also shown. Their ordinary Anglo-Dutch frost-proof tiling, which has become popular for exterior work, particularly for shops where bright colours are required, is shown. Other exhibits include a hob fireplace surround of hand-painted tiles and one in mottled handcraft glazes, also a church tiling adaptable for other purposes where a rich effect is required. For floor tilings, apart from marble mosaic there are examples of Carter's vitreous white, green, and buff—a very bright, clean-looking treatment, which is actually being used by one of the big multiple-shop companies. There is also a counter made of cream glazed faience, with the top in terrazzo marble. This material employment of terrazzo provides an interesting suggestion. One other line, for which Messr. Carter have long been famed is also represented in two artistic hob fireplace interiors; while four examples of a lesser-known side-line are shown in the shape of garden pottery. Altogether the display will well repay inspection.

Messrs. T. B. Colman & Sons, Ltd., of Brighton, have on Stand 90, Row E, two of their patent four-way revolving doors, as installed as entrances to offices, hotels, and other buildings. The opportunity is thus given to test their easy action, and to inspect the various features which make them so popular. The ordinary collapsible door is fitted with a new device (patent applied for) which enables the revolving wings to be collapsed to the centre in one action. The wings can also be folded right over to the side, giving a wide opening. These features likewise apply to the automatic panic collapsible door; in addition, the revolving wings of the latter are adjusted to allow the ordinary revolution for entrance and exit, but as soon as further pressure is applied they automatically collapse. This class of revolving door is especially suitable for theatres, cinemas, and public buildings, and meets the regulations of the L.C.C. and other fire authorities. Both types of door are perfectly draught-proof and entirely rigid.

Cuirass Products Ltd. (69 Victoria Street, S.W.) are showing their No. 6 liquid proofing applied to felt, concrete, and corrugated iron roofs, subject to a downpour of water; also an example of Cuirass liquid proofing used on damp walls and porous bricks, showing its exceptional damp-resisting qualities. Stand No. 224, Row L, includes examples of Cuirass wood preservatives and stains, and Cuirass black enamel suitable for stoves, grates, and all domestic articles. Cuirass liquid proofing has again secured the War Office contract for 1922.

Doulton & Co., Ltd. (Albert Embankment, Lambeth, S.E.), have their customary lavish display of sanitary equipment on Stands 131 and 132, Row G. And once again one of the impressive features of it is the series of bathrooms. Apparently there has been something of a reaction against the icy correctness of the usual expensive bathroom, where not even the bewildering assortment of hot taps could outweigh the refrigerating effect of an all-white marble and porcelain scheme. Messrs. Doulton have recently brought out a "Keramos Colourware" which can be made in colour to suit any scheme of decoration. Its proposed use in superior bathrooms is sure to arouse much interest. Fortunately the company are equally active in the production of humbler classes of goods suitable for more modest purses. The many people who lack space for a fixed lavatory in the bathroom will be interested in Barr's bath basin, a removable bowl which rests on four wooden rollers on the rim of the bath, and which can be adjusted to three different heights. There is a big range of water-closets, cisterns, sinks, lavatories and appliances generally. A number of new patents are included, and serve as reminders of the splendid enterprise in matters of sanitation which has placed Doultons in a unique position.

The building erected by Messrs. Eastwoods, Ltd., Belvedere Road, Lambeth, S.E. 1, is wholly constructed of materials of their own manufacture, and is situated on the left of the main avenue (Stand 121, Row F). It has been designed to display their well-known bricks massed in bulk in actual work. The main façade consists of a segmental arch with pier abutments, the bricks themselves being Eastwoods' Conyer machine-made stocks and red facings. The inside is faced with their Shoeburyness hand-made stocks and red-brick dressings. Another elevation has a segmental arch in Eastwoods' Halstow machine-made stocks. The flank dwarf walls are built with Eastwoods' Flettons. The interior of the central structure displays their second and third quality stocks, Fletton bricks, and concrete partition slabs. The company also manufacture land drain pipes, breeze bricks, etc., and samples of these can be seen at the stand. There is also a general exhibit of building material to show the varied selection of goods in which the company trade. The company have wharves and depots all over London.

Fawcett Construction Co., Ltd. (65 Victoria Street, Westminster, S.W.) are the patentees and manufacturers of "Mon'litherete" (rolled steel) girders, a system which has been on the market for several years. The construction consists of rolled steel girders (from which the superfluous compression web metal has been sheared) and concrete. The concrete takes the vertical compression, or, in other words, does the work of compression web members in lattice girders. Twisted hoop steels are passed through the webb openings and buried in the concrete, as bond in the opposite direction. From actual tests it appears that the breaking weight is four times the working load and 5 feet is the maximum spacing, although in short spans the calculations show more. The concrete need not be more than fairly good. A variation may be obtained by combining the Fawcett Tubular and Mon'litherete systems. Another line of this company is "The Edwardian" down-draught preventing chimney-pot, which achieves the miracle of converting what is usually an eyesore into an attraction. The pots have a nominal height of 24 inches, are made in red, buff and brown, and either round or flat-panelled. Stand 174, Row J.

Ferodo, Ltd., Sovereign Mills, Chapel-en-le-Frith, exhibit at Stand 57, Row D, specimens of their Ferodo patent stair treads and Feroleum nosings. Many fatal accidents occur annually through people slipping on worn, wet, and dangerous stairs, and often results in costly

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THE SUREST SAFEGUARD.

"As a result of the inquiries into the disaster of the structural steel roof at the Knickerbocker Cinema, Washington, the Board of Commissioners and the other authorites concerned have ordered the closing of seven theatres there, declaring them unsafe. The theatres affected include two of the principal houses in Washington. All are to be specially examined by competent surveyors."

Press Cutting.

It is always wise to consult experts of unquestionable repute, who can point to a long record of successful work, and in whose competency complete confidence can be reposed.

The selection of qualified experts is the condition precedent to sound construction. Firms which have been answerable for the erection of thousands of buildings may be fully relied upon by Architects for the responsible work of constructional design.

Integrity, based on competence, is the truest guarantee of safety and efficiency.

The staff of reinforced concrete engineers employed by the Trussed Concrete Steel Company is always at the service of Architects.

The Trussed Concrete Steel Co. Ltd.

125 Truscon House, Cranley Gardens, South Kensington, S.W. 7.

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litigation. Ferodo patent stair treads possess the frictional properties that have made Ferodo friction linings famous for lining brakes and clutches, and grip the sole of the boot so firmly that slipping is impossible. They are manufactured in three types, three colours and in two thicknesses. They are made of specially woven cotton and bonded by the Ferodo method of bonding, which gives them the durability of iron. They grip equally firmly when first put into use and when worn to the thinness of a piece of paper, being of the same quality throughout. They are supplied to fit steps of any size in wood, stone, iron, or marble. Other specialities shown include Feroleum nosings, Ferodo stair-tread dressing, which can be applied to treads suitable for cinemas and theatres, for those in semi-darkness, and Feroleum fibrous flooring, which can be obtained in seven colours, either plain or corrugated.

Messrs. Gawthorp & Sons (16 Long Acre, W.C.), art metal workers by appointment to H.M. the King, are again exhibiting in combination with J. Wippell & Co., Ltd., of Exeter, who contribute some interesting woodwork for private and ecclesiastical purposes. On Stand 31, Row C, there will be found a small but representative collection of stained glass, wrought-ironwork, wood-carving, repousse, brass and bronze memorials. This firm may claim a right to that sacred word "craftsmen," and their stand should not be overlooked.

William Harland & Son, Merton, S.W., have arranged their Stand (No. 152, Row H) as a Renaissance pavilion with a projecting portico and Ionic columns. The exterior is treated with sanitary flat enamel, the Sienna marble pilasters with white marble varnish, and the columns are finished with Harland's well-known Snowite glossy enamel. The interior decorative scheme is noteworthy for the soft and harmonious effects possible by the skilful use of their sanitary flat enamel. One of the smaller rooms contains a number of panels treated with Harland's scumble stains; these go far beyond the possibilities of the old-fashioned stain. Placed round the hall are several grilles finished with their bronze paint, which is admirably adapted for the ornamentation of interior metal work. The Company's various other specialities for the use of the painter and decorator are also represented. The decorative work on this Stand has been prepared and filled up with Harland's ideal undercoating, "Harlania," a new material.

The Hemel Hempstead Patent Brick Co., Ltd. (Hemel Hempstead and 326 Gray's Inn Road, W.C.) are the manufacturers of the "Hempstead" fire- and sound-proof partition blocks, which have been tested to 2,786 degrees Fahrenheit. In thickness they range from 1½ inches to 8 inches, whilst the face sizes are from 12 inches by 6 inches to 12 inches by 12 inches. The weight per yard super is 60 pounds in the case of the smallest and thinnest of these terra-cotta blocks, and 234 pounds in the biggest blocks. A 3-inch partition wall sustained a load equivalent to 660 pounds per foot super. The blocks can be sawn or tooled, and will take nails or screws. Fixing bricks and hollow bricks are made by the same company.

The Ironite Co., Ltd. (Managers, S. Thornely Mott and Vines, Ltd., 11 Old Queen Street, Westminster, S.W.) are at Stand 102, Row F. There are two Ironite brand cements: one is used as a slurry or grouting in combination with Portland cement; the other is supplied in the form of a fine metallic powder for waterproofing, which only needs mixing with water. Estimates for laying Ironite flooring, which is claimed to be proof against wear, dust, water, and grease, will be given on receipt of requirements, or the material (the mixture is 25 lb. of Ironite to every 75 lb. of Portland cement) will be sent to any firm in a position to undertake the work themselves. One coat may suffice on a good surface if the slurry is applied sufficiently thickly, otherwise two coats may be necessary. For roofs and reservoirs two coats are recommended. From one-and-a-half to two million square yards of the walls, &c., of aerodromes and other Government buildings have been treated with this process with the greatest success. It is proving itself most economical and effective in housing and reconstruction work. On the same stand S. Thornely Mott & Vines, Ltd., are exhibiting photographs of Marion steam shovels, for whom they are the sole British agents. A number of Marion machines are in operation in England, and also of the heavy railroad type, so that arrangements can be made to see these machines by anybody interested. The company are also agents for Kilbourne & Jacobs tip wagons, Watson dumping wagons, Stroud elevating graders, and Stroud reversible road machines. Full particulars of all these can be obtained on application to the Machinery Department of S. Thornely Mott & Vines, Ltd., engineers and contractors, 9-11 Old Queen Street, Westminster, S.W. 1.

Jones & Attwood, Ltd. (Stourbridge), have, in their "Domestikatum" boiler, an appliance which might with justice be described as versatile. Its primary function is to serve as an independent hot-water boiler; but in addition it can do all non-oven cooking and be used as an open fire. A second and larger size is now on the market. The "Cultivatum" is a greenhouse boiler produced in four sizes. The "Batheater" apparatus has been on the market for ten years; it is a combined boiler and storage cylinder. On Stand 12, Row B, there will be found various aids to heating and hot-water supply.

James Latham, Ltd. (124 Curtain Road, London, E.C. 2, and Leeside Wharf, Clapton, E. 5) have on Stand 136, Row G, a pile of Austrian oak, which is a particularly fine sample of bright, clean, seasoned oak. It will be good news to many to know the pre-war sources for the supply of this prime wainscot are again available. On Stand G 139 the firm show a most comprehensive collection of woods of commerce, which must appeal to architects and joiners alike. Both plain and finely-figured samples are on view, all the specimens are taken from stock on hand, whilst around the stand are a series of finished panels in fine mahogany, walnut, oak, teak, &c. Each panel is marked by a number, so that anyone looking at it can order supplies straight from stock. Mouldings and floorings in oak, teak, maple, and other hardwoods of the famous "Mahtal" manufacture are in evidence.

A very attractive exhibit in the Main Hall is that of Solignum, the well-known wood-preserving stain, manufactured by Messrs. Major & Co., Ltd., of Hull and London. Set in a well-planned garden are two inviting-looking summer-houses both built entirely of wood and stained throughout with Solignum. One of the houses is treated with the various coloured varieties of Solignum (eighteen different tints are used) giving a jazz effect, and demonstrating what can be achieved in the way of inexpensive staining. The decorative scheme in the other house is carried out with the more usual brown Solignum on 3-ply panelling—the effect produced being that of an oak-panelled room. The floors stained with Solignum are an interesting feature. Solignum stain does not scratch or wear bare, and has a very fine finish when wax polished. Solignum can be put to many uses apart from its general use as a wood-preservative. A visit to Stand 104, Row F, will be found well worth while.

William Oliver & Sons, Ltd. (120 Bunhill Row, E.C.), are once more well to the front both by reason of their pitch on the threshold of the main entrance and by the excellence of their display. Austrian wainscot oak (it is wise to call it by its right geographical name) in exceptional lengths and widths is again a feature. English wainscot oak is also represented. By the way, it is interesting to recall that up to the seventeenth century English-grown oak was exclusively employed: since that time it has become more and more rare for wainscot panelling, and it has been supplanted by imported material. Messrs. Oliver & Sons can obtain supplies of hard woods from the markets of the world. On their Stands 4 and 5, Row A, are samples from Cuba, Honduras, Africa, America, and elsewhere.

The Rawlplug Co., Ltd. (Gloucester House, Cromwell Road, S.W.), are fortunate in the possession of an article which lends itself to convincing demonstration. Not even the youngest visitor can fail to appreciate the simplicity and neatness of this little fibre plug and the astonishing grip it gives to the right size of screw. It is said that a medium-sized screw fixed with a Rawlplug in brick will withstand a direct pull of over half a ton. The plugs hold in practically any material from brick to marble and concrete. Outfits are obtainable both for the handy man and for the trade. Stand 53, Row D.

Ronuk, Ltd. (Portsland, London and Manchester), have, of course, an important department which devotes itself to polishing-contracts. The surface treated is not always wood, for it includes composition or lino-covered flooring, panelling, &c. Stand 109, Row F, gives an indication of what can be achieved with woodwork by their own men. There must be few households which do not know the virtues of "Ronuk"; some enthusiasts recommend it for boot polish as well as for its legitimate purpose.

Marryat & Scott, Ltd. (28 Hatton Garden, London, E.C.) have in operation at Stand 157, Row H, a Marryat-Scott passenger lift gear and a full-size electric automatic

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AUSTRALIA HOUSE.
A. Marshall Mackenzie & Son, FF.R.I B.A.
Architects.

From an original Etching by
Christopher M. Shiner.

REDPATH BROWN & CO. Ltd.

CONSTRUCTIONAL ENGINEERS,

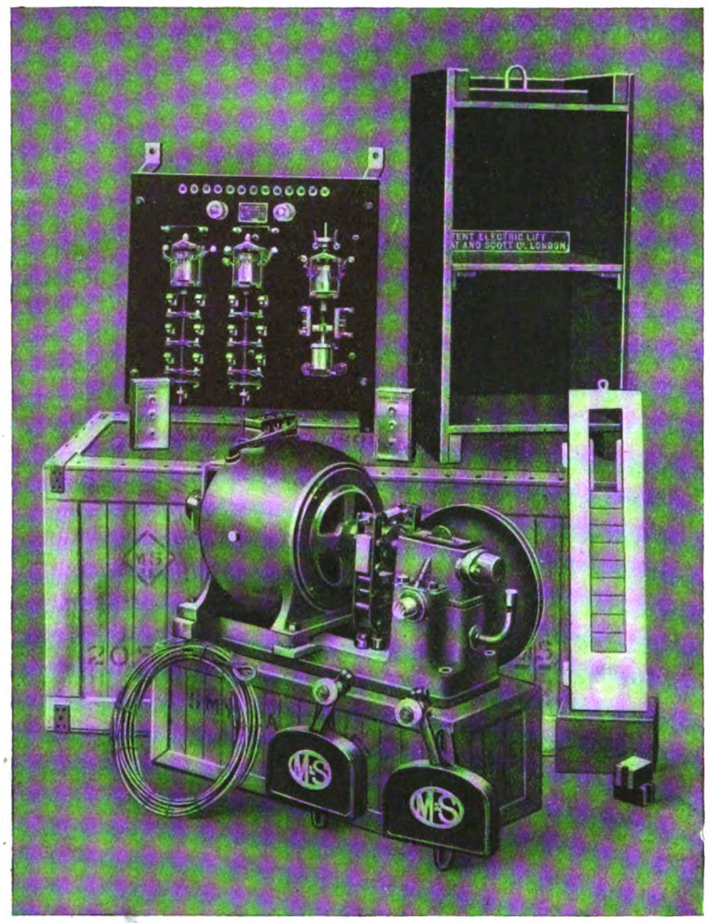
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WORKS AND STOCKYARDS

LONDON	MANCHESTER	EDINBURGH	GLASGOW	BIRMINGHAM	NEWCASTLE-ON-TYNE
Riverside Works, East Greenwich, S.E.	Trafford Park.	St. Andrew Steel Works.	Westburn, Newton. Office: 19 Waterloo St	Office: 47 Temple Row.	Office: Milburn House.

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push-button service lift. A conspicuous feature is a passenger cage fitted with their improved safety gear, which is claimed to be the most efficient upon the market. On the stand one can examine a number of the firm's latest specialities, such as the trip indicator and luminous lift direction indicator, as well as photographs of recent lift construction. Our illustration shows a Marryat-Scott electric service lift complete, ready for erection, as supplied to hotels, restaurants, etc. The control of the automatic push-button type can be arranged so that it is possible to call or despatch the lift to or from any floor to any floor; a modified form gives full control from one point, usually the kitchen or stores, with a single return button fixed on other landings. The firm was established in 1891, and conduct the lift business of Messrs. Marryat & Place and Messrs. Josh. Richmond & Co.



The products of the Self-Sentering Expanded Metal Works, Ltd., 110 Cannon Street, E.C., are well known to the trade. "Self-Sentering" is a ribbed expanded metal reinforcement for concrete floors and roofs, which does away with the need for the use of close-boarded timber shuttering. Amongst contracts of first-class importance it has recently been used in the reconstruction of Drury Lane Theatre. Other typical classes of work on which Self-Sentering has been used during the past year includes roofs in power-stations and cement works, floors in gas-works, paper-mills and bottle factories, hospital verandahs, cinema domes and pipe lines and culverts. "Trussit" is a corrugated expanded metal which, when plastered to a thickness of 2 in., gives a first-class outside wall or partition, and is useful for walls of dwelling houses, factories, garages, &c. Where soundproofness has to be considered, no better partition can be constructed than with this material. "Trussit" was used in a number of bathing huts at Scarborough by the borough engineer with very satisfactory results, and was also used throughout for the walls of the new works of the Kent Portland Cement Co., the Humber Portland Cement Co., &c. "Herringbone" is a rigid, expanded metal lath for fireproof ceilings, encasing stanchions, exterior walls of bungalows, and because of its rigidity, will span across a wider spacing of studding than the ordinary lath, and also requires a minimum of plaster. Stand 94, Row E.

The Siegwart Fireproof Floor Co., Ltd. (Thanet House, 231 Strand, E.C.), are exhibiting various sections of their well-known fireproof floors. Conspicuous on Stand 1, Row A, is a floor having a span of 12 feet. The simplicity of the construction and the ease in laying will be readily understood from the specimen floor. The Siegwart floor requires absolutely no centreing during construction, and an inspection of the spans shown will demonstrate this. The floor consists of a series of hollow granite concrete beams placed side by side and joined together with cement; each beam is reinforced with mild-steel round bars.

Samuel Smith & Sons, Ltd. (Beehive Foundry, Smethwick), are, as last year, at Stand 10, Row B, and their attractive combination grate, the "Foresight," is the most prominent exhibit. Though other specialities include the "Trafalgar" and "Favourite" cooking-ranges, interiors, tile register grates, mantel pieces, &c. The "Foresight" is obtainable in various sizes and finishes. When in action for cooking it has all the qualities of a neat and particularly effective range, with a very low coal consumption. It can be converted into an open fire by little more than the swinging back of a trivet. The back is of firebrick, which radiates all the heat into the room. Messrs. Samuel Smith & Sons claim for it that for cooking and heating it excels other combination ranges, and that the coal consumption is 50 per cent. less.

The stand of the Thames Paper Company, Ltd., is 140, Row G, and it is not far from the main entrance. The Stand has been designed to show the use of "SX" board and the artistic effects obtainable on both ceilings and walls. "SX" board has a very pleasing surface which, when treated with flat paint or distemper results in an attractive finish. This fibre wallboard is actually made in this country. The whole process, from fibre to finished board, is carried out at the company's Thames Mills, at Purfleet, Essex, which are one of the largest of the kind in the world. Their material is already well known for its exceptional rigidity and strength; it is an excellent non-conductor of heat and cold and is sound-deadening; it is undoubtedly an excellent interior lining, as it will not crack, split or fall.

John Tann, Ltd. (117 Newgate Street, E.C.), are perfectly justified in emphasising the fact that they have been established over a century and a quarter. During all that long span they have had to keep pace with the rapidly-increasing resourcefulness of the safe-breaker, as well as maintain a constant research for the best fire-resistant. Their reputation in 1922 is proof of their success. On Stand 44, Row C, there can be seen all classes of fire and burglar-resisting strong-room doors and safes. Humbler specialities like chests and cash-boxes are not forgotten.

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If it is TILES—*visit Stand 101.*

SO interesting is the Stand that a visit cannot fail to be repaid. Here is no mere uninteresting collection of samples but an exhibit of Carter & Co.'s lines in one homogeneous scheme, at once attractive to look at and suggestive of new and interesting ways in which they can with profit be employed.

Every visitor to the Building Trades Exhibition should make a point of examining as closely as possible Stand 101 in Row F.

Following are some of the lines exhibited :—

Floor Tiles and Mosaics, Fire Places,
Glazed Wall Tiling, Shop Tiling.

Ceramic Constructional Material
(Faience and Ceramic Marble).

Those who cannot visit Olympia are invited to apply for booklets on the above subjects (state subjects desired). Sent post free.

CARTER & CO. LTD.,

POOLE, DORSET. LONDON OFFICE: 29 Albert Embankment, S.E. 11.

"RONUK" LTD.

By Appointment to HIS MAJESTY THE KING.

——Stand 109, Row F——

By Appointment to H.M. QUEEN ALEXANDRA.

INVITE INQUIRIES FROM ARCHITECTS & BUILDERS FOR ESTIMATES FOR

POLISHING

Old and new Wooden Composition or Linoleum-covered Floors, Panelling, etc.

BY THEIR WELL-KNOWN SANITARY METHOD, WHICH IS AN IMPROVEMENT ON ANY OTHER SYSTEM OF WAX POLISHING.

Inquirers should state kind of wood, &c., present condition, measurement or area in square yards, nearest railway Station.

"RONUK" LTD., *HEAD OFFICE AND WORKS:* **Portslade, Sussex.**

(Manufacturers of "RONUK" Sanitary Polish.)

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Telegrams : RONUK, WESDO, LONDON.

285 Deansgate, MANCHESTER.
3792 CENTRAL.
RONUK, MANCHESTER.

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W. G. Tarrant, Ltd. (Byfleet, Surrey), have put up an attractive stand in the form of an Elizabethan half-timber gazebo or garden room, the framework being formed of English oak; the hand-made bricks and tiles are from the well-known Rowlands Castle and Chobham brickyards. Examples of joinery shown have been manufactured at Byfleet from artificially seasoned timbers. English timbers that have been seasoned in steam kilns are exhibited. On the upper floor are shown photographs of various country houses, and other building operations, formed principally with the above-mentioned materials; further photographs and plans illustrate estate development. Particular attention should be paid to the bricks and tiles manufactured for inglenooks and similar features. Architects and others are invited to inspect the works. The prices of all materials may be obtained from Stand 93, Row E, or will be posted to architects, together with samples.

Vulcanite Ltd. (Blackfriars House, New Bridge Street, E.C.) show on Stand 98, Row E, the application of patent Vulcanite roofing to flat roofs of wood construction. The usual Vulcanite roof consists of three layers of vulcanite mastic, applied hot, and forming one solid, seamless, jointless mass, with three sheets of "Vulcanite" asphalted felt. The result is a permanently waterproof, fire-resisting, tough, and elastic roof, unaffected by settlement, vibration, or change of temperature. The model shows the type of roof as laid by the firm's own workmen in all parts of the country on some of the biggest jobs (and the smallest) for thirty years. Their well-known roofings—"Leatherite," "Pyramid," "Apex," "Rexilite," and the original Vulcanite sanded asphaltes—are to be shown in rolls and on models. Many samples of dampcourse will be displayed, as well as "Cordkoleum" (a damp-proof underlining for carpets and floorcloth), "Vulcanite" carpet felt, and other specialities for insulating, waterproofing, sarking, and lining. Specimens show the use of "Standard" asphalte as a waterproof filling for cavity walls.

Percy C. Webb, Ltd., marble merchants, St. Katharine Docks, London, occupy the same position as last year—Stand 177, Row J. The features of this year's attractive exhibit are Rosso Antico—the red marble of the ancient Greeks and Romans—and Bryscom, the new building stone. At one end of the stand is shown a wall-lining, with pilasters and frieze, in which this rare red marble, Rosso Antico, has been incorporated with the Blancil Black and Tula Vein marbles. The effectiveness of Bryscom walling is demonstrated in a porch with doorway, and from this example the wide scope which Bryscom offers in construction will be apparent. The exhibition wall is built of worked stones in 5-in. courses, while the doorway is fitted with fine-axed jambs and lintel. The roofing is of picturesque tile-stones quarried in the same locality as Bryscom. The possibilities of Bryscom as a decorative marble are clearly shown in a polished pedestal: here the richly brecciated pattern is displayed to full advantage. A big range of smaller specimens of British and foreign marbles are on the stand. The whole exhibit is mounted on a fine tiled flooring in Sicilian marble. Some decorative onyx lamps and alabaster electric-light bowls are also shown.

Winget Ltd., who are launching out in various directions with labour-saving plant, have many novel features on their Stand 127, Row G, besides the latest types of concrete block machinery. There is a self-loading elevator which will shift thirty tons of loose material an hour at a fraction of the cost of manual labour. In addition to the small portable belt-conveyor which made its first appearance at the Ideal Home Exhibition—handling material of every description in bulk or package—a larger and more powerful machine of the same type will be shown. Three sizes of these belt-conveyors—one with fixed and the others with adjustable booms—are now supplied by Messrs. Winget, fitted with electric or petrol drive, and capable of loading or unloading up to 70 tons an hour. On the Stand will also be demonstrated the "Nonalike" method of concrete block construction, which is attracting much attention in the Liverpool Corporation's Direct Labour Housing Scheme, as also at Welwyn and elsewhere. The Stand also includes block-making machines at reduced prices, together with crushers and clinker-crushing rolls, as well as the latest types of mixers both for wet and semi-wet concrete.

(*To be continued.*)

Forthcoming Events.

Tuesday, April 18.—Building Exhibition, Olympia. Conference, Concrete Institute: (*a*) Training the Concretor; (*b*) Recent Developments in the Industry. To be opened by Mr. E. Fiander Etchells, A.M.Inst.C.E. 5.30 p.m.

Wednesday, April 19.—Building Exhibition, Olympia. Conference, Concrete Institute: (*a*) Concrete Roads; (*b*) Use of Reinforced Concrete in Highway Bridges. To be opened by Dr. Oscar Faber, O.B.E. 5.30 p.m. Lecture: "Old St. Paul's and other Cathedrals." By Herbert A. Cox. 6.30 p.m.

Thursday, April 20.—Building Exhibition, Olympia. Conference of Municipal Engineers. 3 p.m. Conference of Concrete Institute: "What Life can be assigned to Works of Reinforced Concrete for the Purpose of Government Loans." To be opened by Mr. G. C. Workman, M.S.E. 5.30 p.m. Lecture: "The Englishman's House: A Talk to People who know nothing of Architecture." By Nathaniel Lloyd, O.B.E. 6 p.m.

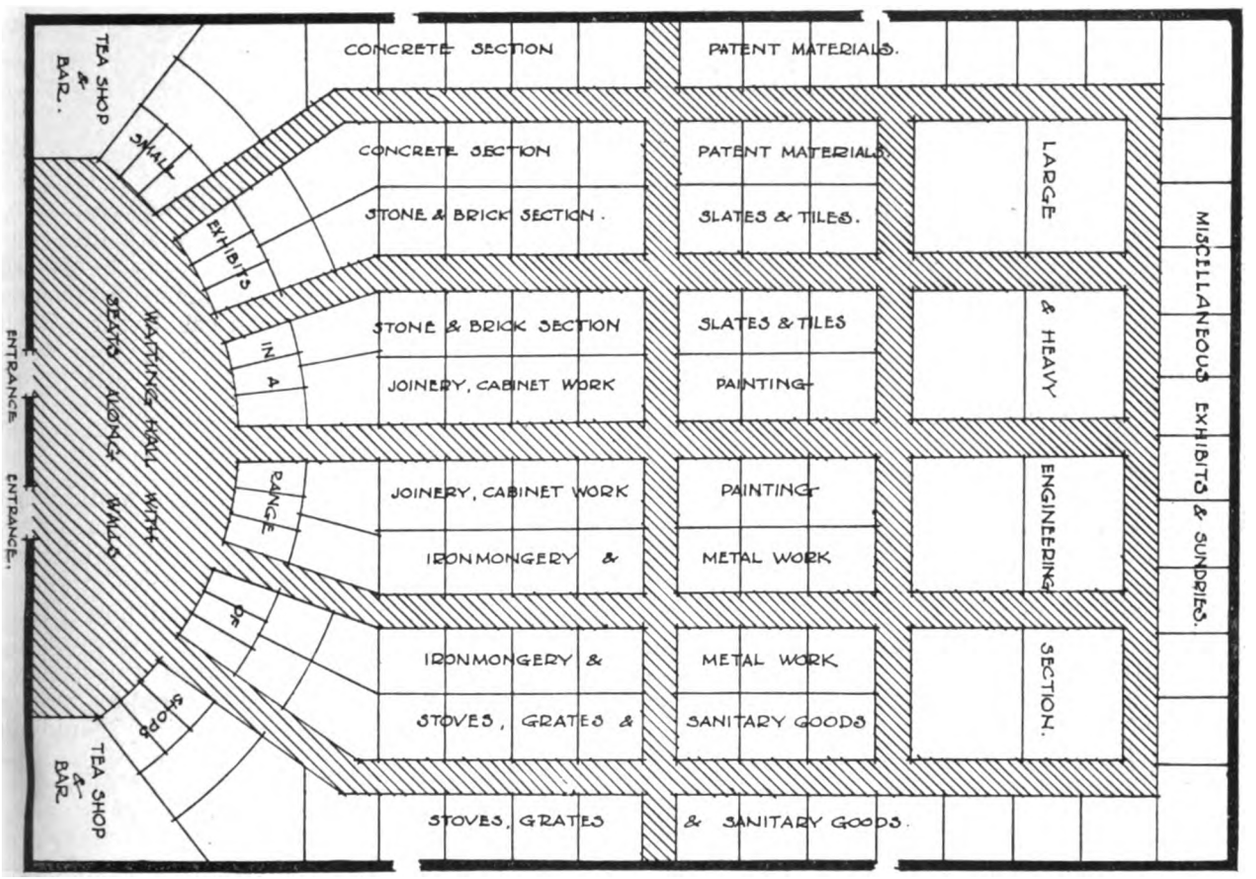
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The Arrangement of the Building Trades Exhibition.



MR. GREVILLE MONTGOMERY has justly received praise for the manner in which he has organised and developed the Building Trades Exhibitions, which have now become a most useful adjunct of the building industry. At the recurrent exhibitions builders learn what the various firms connected with the industry are doing, what processes and inventions have been perfected, and can compare results. The public who are interested in building go to them for information, for they form a sort of bureau of information on technical subjects. Few of the great firms who manufacture and sell goods can afford to be unrepresented, and, as the exhibitions prove, Mr. Montgomery can easily dispose of all the floor-space he has to let. But now that success is assured Mr. Montgomery could safely introduce a few innovations which would, we believe, enhance the usefulness of the exhibitions. The changes we refer to are those of classification and arrangement. There is now practically no field of building enterprise which is not represented. What is urgently wanted is arrangements like that of a dictionary, which would enable the public to find what they want with the smallest amount of effort and trouble. At present, though there is a tendency to arrange certain exhibits in proximity to one another, there is no recognised order or assortment. If we want a concrete system we may find it between the firms of decorative paintwork, while the stands allotted to brick and tile makers are to be found in every part of the building. In the accompanying diagram—which is not that of Olympia and is not to scale—we have suggested that space set apart for each section of building should be arranged on the alternate sides of a gangway; and, further, that these gangways should be arranged on radial lines, converging towards the entrances, leaving a large open space where visitors could meet one another. We suggest that round this open space smaller stalls like shops should be arranged, designed continuously, and in a uniform manner, exactly like a range of shops. These, with the teashops on either side, should be designed and built by the promoters and let by them to applicants for such goods as require little space. Behind these would come the larger stands erected by the firms using them in the usual manner. At the end of each gangway should be notices stating the nature of the goods shown in that gangway. Thus those who wish to see and examine goods of any special kind would know where to go and would have what they want—the opportunity of comparing one with another within a limited area of space. It is true that the catalogue of the exhibition contains all information, but its use involves trouble which many would be glad to dispense with. It is true we can compare two things shown in different parts of the exhibition, but we cannot do this with the same readiness as if the exhibits were side by side. Arrangement and classification would not spoil the exhibition for those who wish to take a general view, but it would immensely facilitate the labour of those who visit Olympia for some defined purpose.

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As for the stands themselves, they may be divided into two classes—those the nature of which show a particular material or process, those whose design rather serves as a framework to attract attention to what is shown within them. Both are good and reasonable, and effective results can be produced in either way. From the standpoint of the public it may be said that exhibits which take the form of a building or part of a building, especially those designed to form rooms, are usually found most attractive, while models of larger structures also attract much attention. A stand like that of Messrs. Tarrant will always please, and when it is, as in this case, admirably carried out will probably be found to be a profitable investment. To the same category belongs the coupled tents of Messrs. Blay, of New Malden, which show how one of the Government steel tents can be made attractive in appearance and comfortable in tenancy. Several of the brick manufacturers' stands are of considerable excellence and good design, and among them we would mention Messrs. Lamb & Sons, S. E. Collier, of Reading, and W. H. Collier, of Marks Tey, but it is singular that better use is not made of woodwork which it is so easy to fashion into attractive form. Possibly for that very reason it has not received the detailed attention its design requires.

As is proved by this and every other exhibition, skilled design is not thrown away on temporary structures, but rather we should say any good designer could show how money could be saved, for a stand should be almost all design. Its practical requirements are so slight as to be almost negligible, its æsthetic attraction is all important and more necessary than that of an ordinary building. Its practical requirements are of the simplest nature; it has not to withstand weather or prolonged uses, but its colour, design, and decoration are all important. One of the best, as well as the simplest, stands is that of the Building Guilds, which is very pleasing in colour, and evidently carefully thought out. The He-o-lin Paint Co. have a good stand, suggesting Chinese work, but its designer is not sufficiently conversant with detail to carry out what is a good general conception in the best manner. Several of the marble firms have produced good and effective stands well adapted for the purpose of showing their various marbles. We might say generally that the lower exhibits are more effective than the higher ones, for, while there is room for plenty of height, the gangways, like streets, limit the convenience of the point of view of a spectator.

But our main point is that now the success of each exhibition is assured beforehand it is open to Mr. Montgomery to improve the layout and arrangements. Even if a little space were lost in so doing we believe exhibitors would be ready to pay at a slightly higher ratio for their stands to ensure an exhibition which business men could visit with the certainty that they could find anything they wanted in the shortest possible time, with the certainty that they would not be overlooking anything belonging to the subject which they specially wanted to examine.

The suggested arrangement shown would dispose of most of the cross gangways, which seem to us to be unnecessary, while the space so saved might, with great advantage, be utilised to widen the main avenues. It would be open to any stall holder to provide, within the limits of his space, a way round on all sides, but we believe concentration of design on one front is all that would be required by most exhibitors, and if this be the case they could save expense.

Illustrations.

OLD AND NEW LONDON BRIDGE. From a Drawing by G. Yates, 1828.

The drawing we illustrate is peculiarly interesting, as, like some of the old water colours in the Crace Collection, it shows evident signs of the careful delineation of detail, and for that reason is of far greater value than any impressionistic drawing, however clever, could be. Old London Bridge was swept by fire in 1633, and such houses as were not destroyed in that conflagration were removed in 1757 and 1758. What, then, remained was rather an imperfect breakwater than a bridge, a structure which warranted the popular saying that "London Bridge was built for wise men to go over and fools to go under." The widest of its arches was only 36 feet across, and the contraction of the channel produced rapids underneath the bridge which rendered navigation dangerous, as it was necessary to ship oar to shoot the bridge. Under these circumstances its demolition was only a question of time, and it was replaced by the present structure, designed by Sir John Rennie, the first pile of which was driven in 1824, and which was publicly opened seven years afterwards. The drawing illustrates the two bridges side by side, for naturally Old London Bridge was only completely demolished when the new structure was completed. We shall be enabled, by the courtesy of Messrs. Batsford, who have acquired a series of contemporary drawings by the same careful hand, to illustrate this very interesting series, which, better than any description can, shows how necessary it was to remove a great historical monument which had for generations been held to be one of the wonders of the world, as it must justly be regarded when we think of that daring of the builders of the twelfth and thirteenth centuries in bridging such a river as the Thames.

ALTERATIONS AND ADDITIONS TO "SHALLOW BROOK FARM" MT. KISCO, NEW YORK. Benjamin Wistar Morris, Architect.

RED TRIANGLE CLUB, PLAISTOW. T. Brammall Daniel and H. W. Parnacott, Architects.

Notes and Comments.

An Exhibition of British Architecture.

An Exhibition of Contemporary British Architecture will be held in the Galleries of the Royal Institute, 9 Conduit Street, W. 1, from November 1 to December 16, 1922. The following arrangements have been made for the organisation of the Exhibition:—

All architects in the British Empire are invited to submit their work, and work that has already been exhibited elsewhere will not be excluded.

Exhibits must be confined to works executed or illustrations of works projected since the beginning of the twentieth century, while all exhibits must be framed and may be glazed. Models will not be accepted for exhibition, but exhibits may consist of photographs, elevations, perspective drawings, and small-scale plans. The exhibitor may choose whether he will send any or all of these. Photographs of drawings are admissible. As the available wall-space is very limited, it is anticipated that not more than 15 square feet of wall-space (inclusive of frames) can be allotted to any exhibitor.

We hope the exhibition will prove a great success, though it cannot be expected to rival the recent exhibition of American architecture held at the Institute.

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St. Helen's, Bishopsgate.

The Leathersellers' Company very courteously acceded to the request of the British Archæological Society to be allowed to make explorations on the building sites round St. Helen's before actual building operations were commenced, and the Court of the Leathersellers' Company offered to pay the expense of such investigations. It has been found that in the cleared area, which is on the north-eastern side of the church, the outline and foundations of an early Saxon church have been revealed. The plan of the building, the character of the stone and mortar, especially in the few feet of walls here and there above the foundation line, are regarded by the experts to be the undoubted remains of a very early Saxon church, probably of the seventh century. An even more interesting discovery has been made. At one corner of the Saxon church foundations there has been brought to light a part of what is believed to have been a Roman church, with bright red bricks of almost vitreous texture, with other characteristics of Roman construction. There has always been a tradition that Constantine erected a church about this spot to the memory of his mother, and the archæologists hope that this find may settle the question.

The action of the Leathersellers' Company in this and other cases is in pleasing contrast to that of many of the other Companies, who jealously object to interest taken in their historical property. The Leathersellers' Company, by their enterprise and management, are to-day practically the head of the management, and control the great industry with which they are associated.

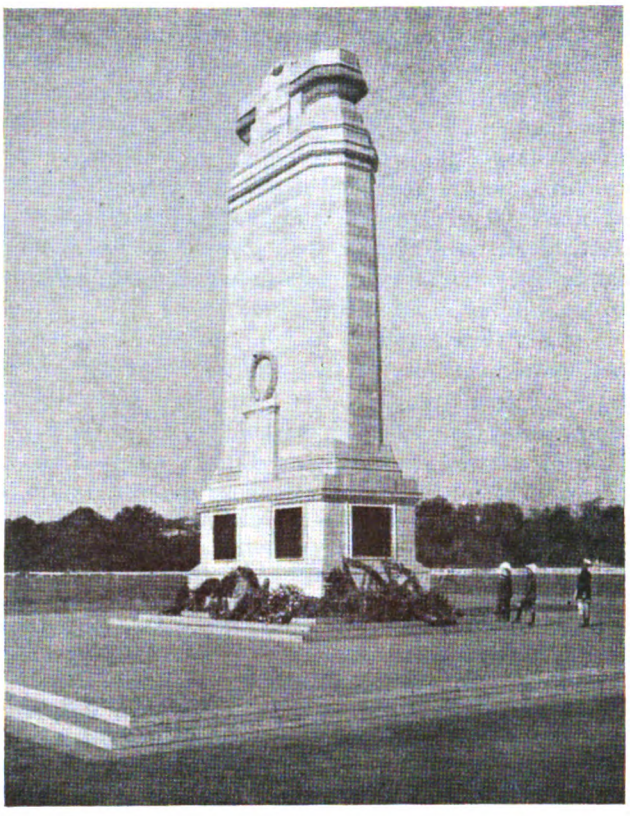
An Unusual Occurrence.

The Urban District Council of Aberdare are said to have been placed in an unusual position. The Ministry of Health assert that the contractors for the local housing scheme have been overpaid by no less an amount than £30,000 on certificates issued by the architect. It was decided to suspend the architect, assistant architect, and clerk of the works, and to adjourn the meeting until the report of the Ministry of Health is received. It is difficult to see how such a mistake can have arisen in a matter of this kind, as a housing scheme gives every facility for arriving at a unit of amount based on the quantities of one house and multiplied by the number of houses in question, which should make it especially easy to keep within closely approximate figures. We should be interested to hear further details of this case. In view of the very large number of cases in which it would be comparatively easy to make mistakes in certifying for builders' certificates it is satisfactory to be able to say that such mistakes are few and far between. Most architects are, in fact, inclined to under-certify rather than over-certify, a prudent course which is often pursued to the inconvenience of a contractor who is in need of his money.

The Lay-Out of Exhibitions.

We doubt if any of the designs submitted for Mr. Greville Montgomery's prizes for the lay-out of the Building Trades Exhibition are on quite the right lines, and we have expressed in an article the considerations which we feel should be paramount. Space might, we think, be well saved if many of the crossways were omitted, for there is little reason why most of the stands should not be designed to be entered and viewed from one side alone. Some four or five crossways might be made to serve all the purposes at Olympia, and if some of the space so saved were thrown into the main longitudinal avenues the convenience of the public would be served. We have often gone to a stall of a manufacturer from whom we wanted to obtain particulars, only to find after a little time that those in charge were talking to someone on another frontage, and, as we know in our towns, too great a choice of roads may actually lead to inconvenience rather than the reverse. We trust that before the date of the next Exhibition Mr. Montgomery may have arrived at an ideal solution, and also a good system of classification.

The War Memorial, Calcutta.



WAR MEMORIAL, CALCUTTA. J. Greaves, Calcutta, Architect.

This memorial was unveiled by H.R.H. the Prince of Wales, and has been erected by the British citizens of Calcutta to the memory of their fellow-countrymen who left the city to serve in the war and gave their lives for the Empire.

The monument stands on the Maidan at the north end of the Red Road in a prominent position at the roadside, where a large proportion of the European residents pass by between the commercial and residential quarters of the city.

The design, says "Indian Engineering," is simple, dignified, and expressive of purpose, and takes the form of a cenotaph raised upon a pedestal and shaft, standing on a paved platform raised above the level of the surrounding grass and adjoining road. The pedestal is divided into square panels, which contain bronze tablets bearing the names of the fallen. On each side of the shaft is a carved wreath supported on a pedestal, and above the shaft is the cenotaph on a moulded support and with panels at each side with the dates MCMXIV and MCMXVIII in incised figures, and the cenotaph itself is surmounted with a carved wreath.

The monument is faced with stone quarried at Chunar, Mirzapur District, U.P. The steps and surbase to the pedestal are in stone of a warm reddish colour, and all above in a white stone. The height of the memorial above the paved platform is 46 ft., and the dimensions of the pedestal 18 ft. 6 in. by 8 ft. 10 in., standing on the paved platform, size 78 ft. by 68 ft.

The models required for the carving of the wreaths were prepared in the Government School of Art, Calcutta, under the direction of the architect.

The bronze tablets were made by Messrs. Blunt and Wray, London, under the supervision of Mr. MacDonald Gill, London, and the memorial has been erected very carefully and expeditiously by Messrs. Martin & Co., Calcutta, to the designs of Mr. J. Greaves, architect, Calcutta.

Mr. George E. Withers, F.R.I.B.A., London, is the architect for a Wesleyan church which is about to be erected in Filey.

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London Art Galleries.

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One of the most attractive painters of the Norwich School—perhaps *the* most attractive after John Crome—is John Sell Cotman, and we are peculiarly fortunate this month in having in London two very representative exhibitions of his work, including oil paintings, water colours, and his wonderful drawings: these exhibitions, at the British Museum and the National Gallery of British Art, are of more than passing interest, and so important, in fact, that I propose to give special attention to them in my notes of this week.

It has always seemed to me a matter for regret that our Government of the time—as has been pointed out by Sir Alfred Temple in his "Guildhall Memories"—threw away the splendid opportunity for a Gallery of British Art on the Victoria Embankment—"on the threshold of, but not within, the busy life of the City"—and offered in its place the site of the recently destroyed prison at Milbank; but the Cotman drawings now on view in that Gallery are of such interest that they merit the not very convenient journey, with the payment of a modest shilling, which the authorities demand as their pay-day contribution, instead of the sixpence which is sufficient for our National Gallery.

John Sell Cotman was born at Norwich, the son of a well-to-do silk mercer, in 1782, and always retained a great affection for that old city; but the call of art was strong, and about 1798 he went to London to try his fortune, came to know Dr. Monro there, and worked at his house in the Adelphi beside J. M. W. Turner and Thomas Girtin. In 1799 Girtin had formed a sketching club, which Cotman joined; but Girtin died when still young, in 1802, and Turner, as has been well said, "the greater genius of the group, eventually burst all limits and traditions." What strikes us with the Cotman drawings in this Gallery is their unequal quality; but often, more often, he soars to a very high point, and his colour, influenced by Girtin, is rich though generally restrained. His architectural drawing is fine, and shows a real sympathy with this side of his art, in such studies here as his magnificent interior of Crosby Hall or his Church Porch at Louviers; and his drawings are admirable, such as his crayon or soft pencil study of "Trees in a Quarry," his "Helmsley Woods" in crayon, or his study in body-colour on brown paper from Mr. Russell Colman's collection. From the same collection comes the "Landscape and Palace of the Prince de Beauharnais," which suggests the influence of Crome; but, as a rule, I find myself far more attracted by his water colour. Delightful examples here are the "Blue Afternoon," dated 1831, the "Greta Woods," the "Landscape with Trees," so typical of Cotman's method, with its cool greys and broad treatment, the Turneresque "Classical Landscape," the "Hay Boat," the "Via Mala," the "St. Benet's Mill," and "A Shady Pool, where the Greta joins the Tees."

Perhaps the unevenness to be noted in Cotman's work may have come in part from the difficulties of his life—for, in spite of his industry, he had a hard struggle, and a great deal of his time had to be given to the drudgery of teaching drawing—and to consequent ill-health and depression. Turner was always a good friend to him, and it was through his influence that he obtained the post of drawing master to King's College, London, a post which he held to the date of his death, in July 1842. He experimented in mediums, and it has been suggested that the exquisite quality of his "Cader Idris," with its wonderful blues, may be due to the surface protection of a glutinous liquid of rotting paste made of flour; but this last drawing will carry us to the British Museum Print Room, where a very choice little display of Cotman's drawings, beside a few others of the Norwich School, is now on view. To my reader, who has time at his or her disposal for a second Cotman journey, though a much easier one, let me recommend this visit, as complementary to the former: it is a much smaller display, but choice in quality, and, in fact, the colour drawings of "Postwick Green" (on toned paper) of "Cader Idris" (just mentioned) or "Mountain Tarn," with the same strong blues, would be hard to beat. Or, again, we may turn to his black and white or sepia work, with the "Shadowed Stream," in sepia, with a wash of Indian ink, the "Evening, Boys Fishing," or the "Fire at Vinegar Works," a Norwich scene in pencil on grey paper with touches of body-colour. Cotman was a consummate pencil draughtsman, and I would pick out here his "Dark Moor," in pencil on blue paper, heightened with white, and his "Mousehold Heath"—a favourite subject, too, of old Crome—finely composed in black and white chalk on drab paper, signed and dated on the back, November 1841. "Mousehold Heath" appears again here in a signed drawing by the artist's son, John Joseph Cotman, next to some good drawings by John Thirtle, an artist of the Norwich School, who is scarcely yet fully appreciated, but whose "St. Benet's Abbey"—a subject which Cotman, too, had treated—hangs here beside work by J. Stark, J. Stannard, Robert Leman, and Henry Bright.

Now I will transport my reader to the National Gallery and let him glance at the Turner drawings, selected years ago by Ruskin, and placed this month on view for the first time since the war. Cotman may—as has been said—be the greatest of English water-colour painters born after Turner, but Turner himself remains unapproached, and reaches his height in the flame-like vision of Venice from Fusina. Many, in fact most, of the water colours shown here take their inspiration from Venice—The Arsenal, The Salute Church with the Campanile, the Giudecca Canal, The Riva dei Schiavoni, the beautiful "Sunset at Venice," and in this room are hung the two large Claude paintings, placed beside his work at Turner's express wish and direction. While in the Gallery, do not let my reader neglect to see the Van Dyck portraits of the "Balbi Children," loaned by Lady Lucas, in the same room with this artist's superb "George and Francis Villiers," which I have mentioned in these columns. The little Masaccio roundel of "God the Father," recently presented, will be found in Room I., and had been evidently in the frame of the famous Naples "Crucifixion."

The exhibition of paintings by W. G. Burn-Murdoch, F.S.A.Scot., at the Gallery of Messrs. Bromhead, Cutts, in Cork Street, W., which was to have closed on April 13, will, I understand, be open for another ten days. Mr. Burn-Murdoch is a traveller, lecturer, and author, as well as an accomplished artist: he studied beside Mr. Hornel at Antwerp, and later spent two years in Paris in the atelier of Carolus Duran. His work here shown is mainly figure work in water colour, though there are one or two remarkable sea pieces, for the artist knows the seas, and, before any other, painted the wonders of the Antarctic. He treats his figures or architecture—such as "A Smiling Gypsy," "The Bridge at Avignon," "The Clavet Museum, Avignon"—in broad masses of light and shade; the detail is there, but subordinated to the masses, and the effect gained is one of great spaces of light, appropriate to these scenes from Southern France.

I understand that the President and Council of the R.A. are proposing to hold an exhibition of decorative sculpture at Burlington House in January and February of 1923; and this display will include paintings, mosaics, tapestry, and sculpture for the permanent decoration of buildings.

The London Press Exchange are supplementing the Poster Guide of London Exhibitions, now displayed in the Underground Railways, by a monthly leaflet containing the same information; this should prove useful if kept thoroughly up-to-date, but in the copy sent me yesterday the Cotman Exhibition at the Tate Gallery had been passed over.

S. B.

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Modern Methods in Building Construction.—XIII.*

By Albert Lakeman, M.S.A., M.C.I.

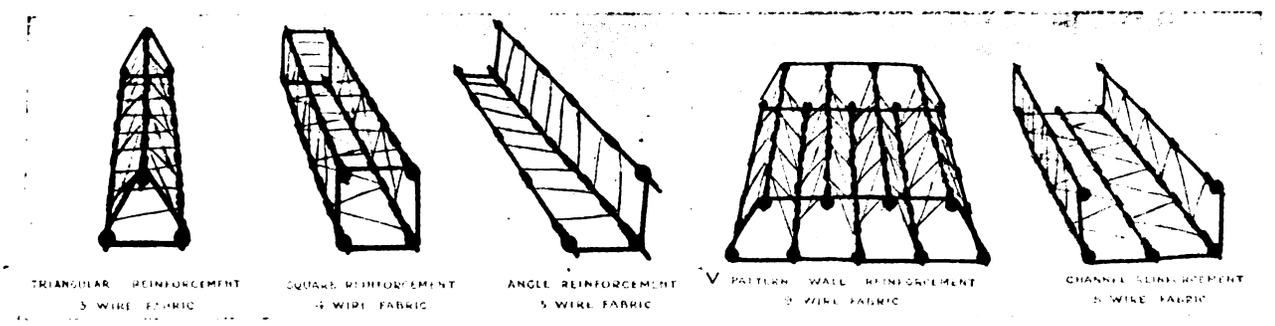


FIG. 66.—BARB ENGINEERING COMPANY'S REINFORCEMENT.

FOUNDATIONS IN SOFT SOILS—(*cont.*).

The "Wonpees" Fabric is manufactured by the Barb Engineering Co., of Westminster, and is obtainable as a roll of jointless reinforcement. It is manufactured from bright hard-drawn steel wire of high elastic limit, with a tensile strength of 35 to 40 tons per square inch. It is made in 1½-inch and 3-inch mesh of equal area per foot width of cross section with transverse wire spaced at standard intervals. It is claimed that the smaller mesh provides a better distribution of reinforcement and the unrolling can be accomplished by one man, whereas five men are required for the larger mesh, and thus considerable economy in handling is effected.

Owing to the close spacing of the wires in the small mesh the makers state that a higher factor of safety is given as compared with the 3-inch mesh of equal cross-section area and a more uniform distribution of stress is obtained, but the purchaser can specify either mesh as required. Where the longitudinal and transverse wires cross one another they are formed into one homogeneous mass by the maker's own special process, and it is claimed that chemical analysis and micro photographs prove that the fibre of the steel is not disturbed, weakened or destroyed by this process. The fabric can be obtained in twenty-one different standards, having fourteen strength variations, which are described by reference numbers and in some cases by a letter in addition, as example 8A is a 1½-inch mesh with No. 8 gauge longitudinal wires and No. 12 gauge transverse wires, while 8B is a 3-inch mesh with No. 4 and No. 10 gauge wires respectively. As a general rule the 1½-inch mesh, or spacing of the longitudinal wires is designated A and the 3-inch mesh as B. When a plain number only is used it indicates that the 1½-inch spacing only is standard, except in the case of Nos. 13 and 14, although the 3-inch mesh can be supplied to order. The standard varies from Reference No. 1, which is made with No. 1 gauge longitudinal wires spaced at 1½-inch centres and No. 6 gauge transverse wires spaced at 18-inch centres, to No. 14, which is made with No. 10 gauge longitudinal wires at 12-inch centres and No. 10 gauge transverse wires also at 12-inch centres.

The sectional area per foot width of No. 1 is .5656 square inches, and the safe tensile strength for this width, at 25,000 lb. per square inch, is 14,120 lb., while the sectional area per foot width of No. 14 is only .0258 square inches and the safe tensile strength for this width is 645 lb. All the standard sizes are made 7 feet wide, with the exception of Nos. 13 and 14, which are 7 feet 3 inches wide. The length of a roll is 240 feet in the majority of cases, but Nos. 1 and 2 are 150 feet long and Nos. 3 and 4 are 180 feet. The standard prices† are 10s. 5d. per square yard for the No. 1 fabric and 1s. 6d. per square yard for the No. 14, with a graduation for the other sizes between, but in nearly all sizes the price of the 3-inch mesh is higher than that for the 1½-inch mesh of the same sectional area. A series of tables giving the thickness of concrete required for slabs and the standard mesh to be used for various loads per foot super over different spans have been prepared by the makers, and these will facilitate the design and enable quantities to be quickly taken off for ordering. The makers of the "Wonpees" fabric claim that the following disadvantages of the old-fashioned method of using loose rods for slab reinforcement are overcome by the adoption of their material:—

(*a*) Loose rods are easily displaced.

(*b*) Correct bending cannot always be assured.

(*c*) Incorrect spacing is quite common.

(*d*) Continuity cannot be obtained except by lapping the bars.

(*e*) The amount of time spent in laying is a serious factor when costs are ascertained.

(*f*) Continual supervision has to be maintained in order that design shall be strictly adhered to.

The advantages of the fabric claimed include:—

1. Continuous length of heavy reinforcement 150 feet long with .5656 cross section.

2. Large sectional area per foot width with light-gauge wires, making the fabric easy to unroll and handle.

3. Better distribution of reinforcement.

4. Reduces the laying cost to a minimum. Unskilled labour only necessary.

5. Smaller measurements for shipment or stocking.

6. All the disadvantages mentioned above in connection with loose rods are overcome. The Barb Engineering Co. also manufacture stirrups, hoops, and helicals for general reinforced concrete work, "Wonpees" brickwork reinforcement, patent "Duplex" netting and "Truehex" netting, which are suitable for various purposes. The application of some of this firm's products to special shapes is illustrated in fig. 66.

An interesting type of reinforcement which is very suitable for rafts and roads is the Patent Pyramidal Interlocked Framework made by the Walker-Weston Co., Ltd., of Wormwood Street, London. This type is a definite framework reinforcement as distinct from a sheet reinforcement, and several claims are made as to the advantages of this system. It is important in all concrete rafts to provide for shear and contraflexure stresses in addition to tensile stress, and the makers claim that this provision is made when the double layer framework is adopted as the diagonal wires connecting the two layers serve as shear members, whilst the top and bottom layers provide the necessary tensile resistance for the stresses due to flexure and contraflexure. This reinforcing framework, which is assembled in the immediate vicinity of the work under skilled supervision, is so rigidly constructed that the concretors may tread on it

* I. Introduction, Steam Shovels, Jan. 13; II. Steam Shovels (*cont.*), Trench Diggers, Jan. 20; III. Grab Buckets, Scrapers, Jan. 27; IV. Drag-line Excavators, Feb. 3; V. Derricks and Cranes, Radial Loaders, Feb. 17; VI., Surplus Soil Transport, Feb. 24; VII. Surplus Soil Transport (*cont.*), Mar. 3; VIII. Surplus Soil Transport (*cont.*), Mar. 10; IX. Surplus Soil Transport (*cont.*), Mar. 17; X. Surplus Soil Transport (*cont.*), Mar. 24; XI. Foundation Work, April 7; XII. Foundation Work (*cont.*), April 14.

[† These are standard prices which are subject to market fluctuations.—ED.]

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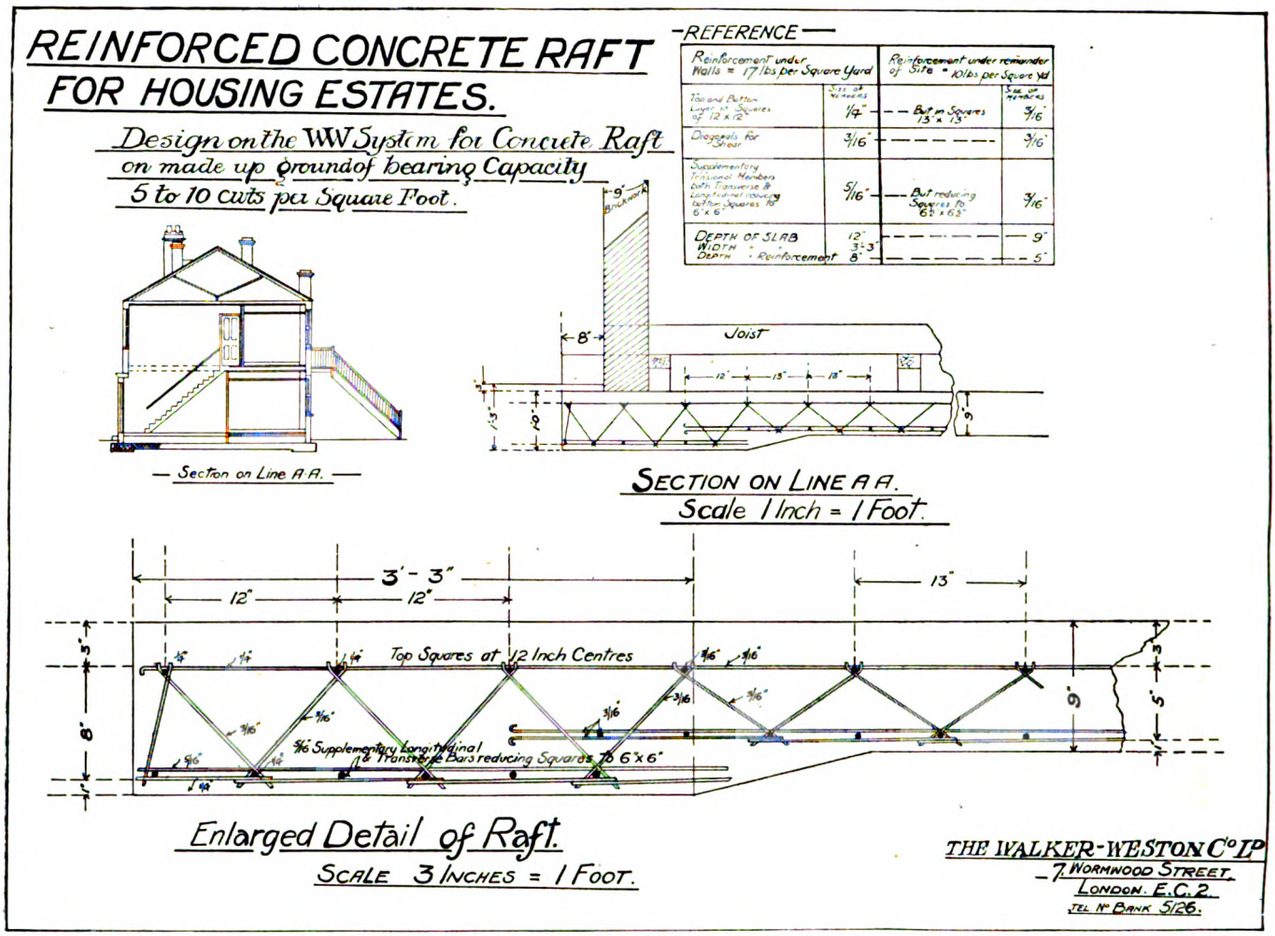


FIG. 67.—REINFORCED CONCRETE RAFT. (Walker-Weston System.)

without displacing any of the component bars or causing any injury to the framework.

A uniform strength, longitudinally and transversely, is given by the reinforcement, as the same amount of steel is given in both directions, and this ensures a uniform distribution of stresses, while the accuracy of location is ensured by the method in which the steel is applied. Two illustrations are given of this type of reinforcement, that in fig. 67 showing the application to a concrete raft on made-up ground having a bearing capacity of 5 to 10 cwt. per foot super, and fig. 68 showing the use of the material in a concrete platform, &c., at the Royal Albert Dock for the Port of London Authority. The frames are made in two standard patterns, of which the following is a description:—

Pattern A.—(1) For moderately good ground. Framework composed of $\frac{3}{16}$ in. diameter bars in top and bottom layers of framework, the bars in the bottom layer spaced at 6-in. by 6-in. centres and in top layers 12-in. by 12-in. centres, with No. 6 standard wire-gauge wire connecting the two layers, the depth made to suit any thickness of concrete up to 8 in. The weight of this framework is 10 lb. per sq. yd.

(2) For positions where the subsoils are liable to subsidence, particularly on road work, the same framework but with $\frac{1}{4}$-in. diameter bars in the layers. This weighs 14 lb. per sq. yd.

Pattern B.—Suitable for heavy work, such as wall foundations and in shipyards. Framework composed of $\frac{1}{4}$-in. diameter bars in top and bottom layers spaced at 12-in. by 12-in. centres, with additional $\frac{5}{16}$-in. diameter bars in bottom layer, reducing the spacing to 6-in. by 6-in. squares, with No. 6 S.W.G. wire connecting the two layers. Weight per sq. yd., 17 lb.

Measurements of the reinforcement are taken over the finished surface of the concrete in road work, and no extras for lapping reinforcement, cutting to waste, cost of cartage, &c., are entailed. The claim is made by the makers that this system is the cheapest obtainable and the best, as all the material is disposed scientifically, while a certain amount of local unskilled labour can be employed in assembling and laying the reinforcement under the skilled supervision of their own engineers, as the price includes for laying the reinforcement in position ready for concreting.

In dealing with road work the makers claim that cracks of any magnitude are prevented owing to the steel being provided in both surfaces with diagonal members

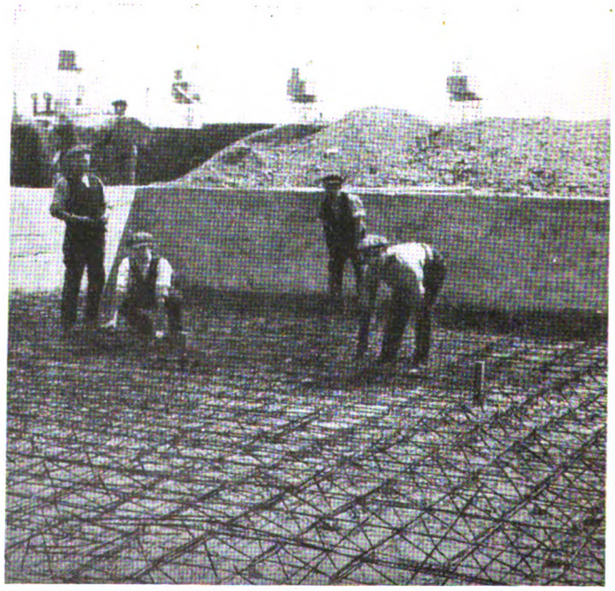


FIG. 68.—CONCRETE PLATFORM, WALLS, AND CART AREAS FOR PORT OF LONDON AUTHORITY AT THE ROYAL ALBERT DOCK. (Reinforced by the Walker-Weston System.)

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between. This question is dealt with by them in the following words: "As the co-efficient of expansion of concrete is .0000055 and the modulus of elasticity is generally agreed to be 2,000,000, the stress per degree Fahrenheit is equivalent to 11 lb. per sq. in. A fall of 27 degrees in temperature is, therefore, sufficient to crack concrete having a tensile strength of 300 lb. per sq. in. These facts assume added importance when it is remembered that there is less cracking in concrete when laid in cold weather than in warm weather; consequently, if the temperature of the top surface falls considerably and owing to the thickness of the slab and the temperature of the sub-soil the under surface is not affected, reinforcement to take this stress and thus prevent cracks of any magnitude should be in a layer near the surface, preferably combined with inclined members anchoring the heated surface to the colder layer. The reinforcement placed near the underside of the slab is in this system connected by diagonal members to the upper layer in order to provide increased resistance to such cracks as are likely to occur."

The reinforcing framework can be designed to meet any particular conditions of loading on constructional work by varying the diameter of the bars and the provision of supplementary bars in either the top or bottom layer, or both, and thus it is not limited to the standard types previously described when conditions justify a variation. In concrete roads the Walker-Weston Company recommend that the concrete work should be carried out on the "alternate-bay" principle, and that adjacent bays should be rigidly connected by a patent interlocked joint, which it is claimed not only prevents upward buckling, but also depressions likely to cause injury to the arris at the edge of the slab, such as would occur if plain vertical joints were adopted. The bays should not be placed square with the kerb, but at an inclination of, say, 1 in 3. This, it is suggested, would appear to be an improvement, as the two wheels of an axle could not pass over the joint at the same instant, because each wheel would rest on an adjoining slab.

The steel used in making the double layer reinforcement is the best quality mild steel, but hard-drawn steel can be supplied for the upper and lower layers where necessary.

The "B. & T." Mesh Reinforcement is made and supplied by Messrs. Brown and Tawse, Limited, of 3 London Wall Buildings, London, and they claim all the advantages accruing to a mesh reinforcement as compared with the loose rod system, which advantages have previously been enumerated.

The mesh in this case is manufactured from square twisted wires, the cross wires being interwoven with the longitudinal wires, or tension members, in such a way that the latter are held in position by the natural lock created by the twisting of the bars. An advantage is claimed on account of the bonding properties, apart from the adhesive bond, and the natural rigidity and high tensile strength of the material.

This reinforcement is stocked in flat sheets 20 ft. by 5 ft. and 20 ft. by 6 ft., but it can be made in any length or width required. The sheets are easily joined by a patented system of locking wires, which by avoiding overlapping saves ten per cent. of reinforcement.

The various sizes of standard mesh are arranged to cover a very wide variation, and the classification is grouped in a simple manner, according to the gauge of the main tension wires. There are twelve groups in all, ranging from that having a prefix of 1 to that with prefix 12. All those in No. 1 group have tension wire, with a gauge of No. 1, and the size of the mesh varies from 3 in. by 6 in. to 6 in. by 12 in.

The cross wire in this group is No. 8 I.S.W. gauge, except in the case of No. 1c, where the mesh is 6 in. square, and the wires in both directions are No. 1 gauge. The weight in this group varies from 7.12 lb. per square yard to 12.61 lb. per square yard, and the effective sectional area per foot of width from .18 to .36 square inches.

In all the groups longitudinal or square mesh can be obtained, and in the latter type the wires in both directions are of the same gauge.

The standards in No. 12 group are eight in number, varying from 6-in. by 8-in. mesh to 2-in. by 2-in., and the tension wires as indicated by the group number are all No. 12 gauge. The cross wires, except in the square mesh, are No. 14 gauge. The weight of the fabric in this group per superyard varies from 1.35 lb. to 3.27 lb., and the effective sectional area per foot of width from .022 to .066 square inches. The makers of the "B. and T." reinforcement issue some useful tables showing the fabric to be used for various loads over different spans, together with thickness of concrete required when used in floor work, and the designer will find it a simple matter to make a selection to suit any condition where the load is from 50 lb. up to 300 lb. per square foot distributed uniformly. In these tables the safe stress on the steel in tension has been taken at 25,000 lb. per square inch. Messrs. Brown and Tawse also supply plain twisted rods, "B. and T." stirrups and links, and "B. and T." Brix reinforcement, the latter being made in widths of 2½ in. to 7 in. for reinforcing brickwork. This material is made up in rolls of from 20 yd. to 100 yd., and is also supplied in flat sheets of 10 ft. to 30 ft. in length.

"Triangle Mesh" is made and supplied by Indented Bar and Concrete Engineering Co., Ltd., of Westminster, and this is a woven wire material manufactured from cold-drawn steel wire arranged to give a truss form of construction, which is claimed to be extremely effective and economical. The steel wire used has been exhaustively tested, and the tensile strength and elastic limit are approximately 100,000 and 80,000 lb. per square inch, while considerably higher figures have been obtained during such tests. The main tensional wires running longitudinally through the fabric are connected by diagonally arranged cross-wires, which maintain accurate spacing and generally assist the tension members. It is claimed that this type provides one of the best possible mechanical and adhesive bonds in concrete, and reinforcement is provided in every direction with the minimum amount of material, as the stresses are equally distributed in an effective manner. An excellent idea of the arrangement of the longitudinal and cross-wires is given in fig. 69, which shows some triangle mesh in position ready for concreting. The makers also claim an advantage in the flexibility of the material, as it may be folded on any longitudinal member without bending the cross-wires, owing to its hinged type of construction. This is a very useful feature when it becomes necessary to have reinforcement in both top and bottom surfaces of a concrete slab, because this can be effected by raising

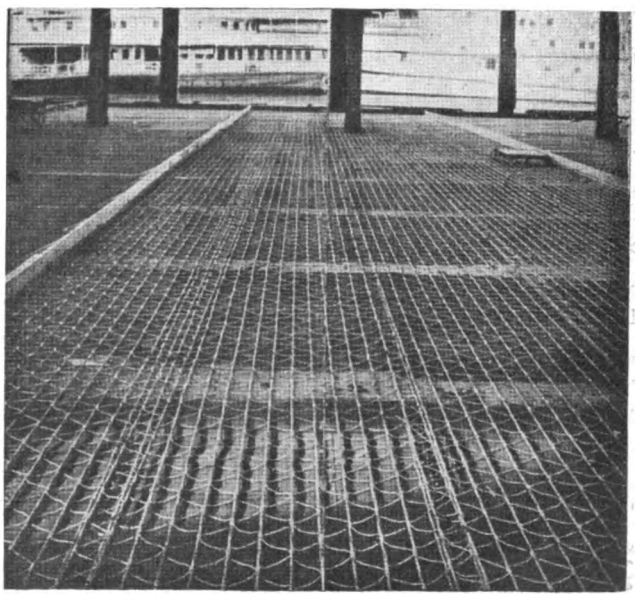


FIG. 69.—TRIANGLE MESH IN POSITION.

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alternate longitudinal members to the required height, where they will be kept in position by the transverse members. By this method both top and bottom reinforcement can be obtained while using only one layer of the mesh. The mesh can be obtained in widths of from 16 in. to 56 in. and in continuous rolls of 150, 200, and 300 ft., thus permitting the use of a long stretch of tensional reinforcement without longitudinal lapping. The fabric is made in twenty-one different standard strengths with longitudinals spaced 4 in. apart, and No. 14 gauge cross-wires spaced at 4 in.

The standards are denoted by numbers, which in each different size of material correspond to the sectional area of the steel per foot of width, thus No. 032 has an effective sectional area of .032 square inch, and No. 395 an effective sectional area of .395 square inch. These two numbers show the range of the standards, the first-mentioned having an approximate weight of 1.98 lb. per square yard, and the second a weight of 14.40 lb.

In the stronger meshes the longitudinals are composed of two or three wires according to the sectional area required, whereas in the lighter types one wire only is adopted, with a varying gauge according to the number. The makers recommend the rolls of 150-ft. length for the heaviest mesh, the 150- and 200-ft. lengths for the medium weights, and any of the lengths for the lighter types, owing to the convenience of handling.

The British Fire Prevention Committee tested this material under fire and water, when classification "Full Protection" (Class B) was obtained. After the official test the floor was allowed to cool and then reloaded with a load of 5 cwt. per square foot. The floor showed no signs of failure, and the deflection of the slab below the beams was only 0.4 in.

(To be continued.)

Forthcoming Events.

Friday, April 21.—Building Exhibition, Olympia. Architects' Welcome Club reception in the Pillar Hall, 3 p.m., and Dinner, 7 p.m. Architects' Ball and Revel, 9 p.m. Conference of Concrete Institute: (*a*) "Concrete Block Building"; (*b*) "Reinforced Floors"; (*c*) "Use of Pre-cast Work in Building Structures," to be opened by Mr. E. S. Andrews, B.Sc. 5.30.

Saturday, April 22.—Building Exhibition, Olympia. Visit of Institution of Sanitary Engineers.

—— Edinburgh Architectural Association. Visit to Ravelston House and Craigcrook Castle.

Monday, April 24.—Building Exhibition, Olympia. Popular lecture by Professor Patrick Abercrombie, F.R.I.B.A., entitled "What We Mean by Town Planning."

—— Architectural Association. Meeting at 34-35 Bedford Square, W.C. Paper by Mr. Arie Keppler (Director of Housing, Amsterdam), entitled "Modern Housing in Holland." Nomination of Officers and Council, 1922-3. 7.30 p.m.

Tuesday, April 25.—Institution of Civil Engineers. Annual General Meeting at Great George Street, Westminster. 6 p.m.

—— Liverpool Architectural Society. Annual General Meeting at 13 Harrington Street. President's Closing Address. 6 p.m.

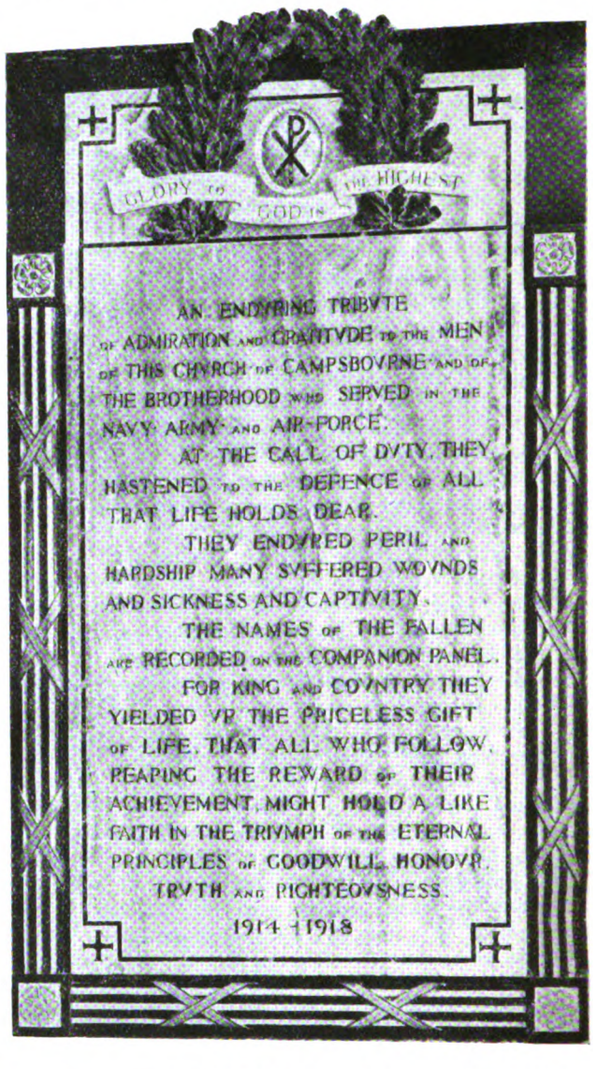
Wednesday, April 26.—Building Exhibition, Olympia. Popular lecture by Sir Lawrence Weaver, K.B.E., entitled "Modern Domestic Architecture: Fashion and Style." 6 p.m.

Thursday, April 27.—Illuminating Engineering Society. Meeting at Royal Society of Arts, John Street, Adelphi. Discussion on "The Use of Light in Hospitals." 8 p.m.

—— Concrete Institute. Annual General Meeting at 296 Vauxhall Bridge Road, S.W. Paper by Mr. W. Noble Twelvetrees, M.I.Mech.E., &c., entitled "Reinforced Concrete Piers and Marine Works." 7.30 p.m.

Plans for a post-office to be erected adjoining the Cottage Hospital at Lynton have been sanctioned by the Government.

The Surveyors' Institution, acting under their powers under By-laws 47 and 52, have elected Mr. John McClare Clark, Senior Vice-President, of Haltwhistle and Hexham, Northumberland, as President for the remainder of the Institution session, in place of the late Mr. J. H. Sabin.



Memorial Tablet, Crouch End.

Two memorial tablets have recently been erected in Ferme Park Baptist Church, Crouch End, to commemorate the seventy men from the church who laid down their lives in the late war. They were designed by Mr. C. S. Kimpton, A.R.I.B.A., and produced by Messrs. Percy C. Webb, Ltd., of London, who have of late been specialising in the higher branches of this class of work.

Each tablet measures some 5 ft. by 3 ft. The tablet proper is of Algerian onyx—a beautiful honey-coloured material—with a narrow inlaid border of Irish green marble, while in each of the four corners is a Military Cross ornament inlaid again in this same green marble. The surround or border is of Greek Rosso Antico marble, a most suitable marble for such work by reason of its deep beauty. It is worked in a reeded moulding with crossed ribands.

The tablets are fixed on either side of the pulpit: one is surmounted by a bronze wreath of oak leaves, signifying Victory, while the other carries a wreath of laurels, emblematic of Christian immortality. Each wreath is broken by a ribbon—one ribbon bears the inscription "Glory to God in the Highest" and the other "Their name liveth for evermore." The early Christian symbols of the "Chi Rho" on one tablet and "Alpha and Omega" on the other are inlaid in green on medallions of Algerian onyx in the centre of the two wreaths.

The lettering throughout is in well-shaped letters of true Roman type, cut V-shape and enamelled brick-red.

Messrs. A. V. Gardner and W. R. Glen, architects, Glasgow, have prepared plans for the conversion of St. Katherine's Hall, Aberdeen, into a *Palais de Danse* at a cost of £5,000.

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Correspondence.

Unification and Registration.

To the Editor of THE ARCHITECT.

SIR,—We did not "misquote" Mr. Butler either "deliberately" or unintentionally, our quotation was perfectly accurate. He spoke in favour of admitting all architects into the Institute, and we gave an extract from his speech necessary to illustrate his views; he now gives you a longer quotation, which we welcome, as it has the effect of emphasising those views and so he helps us. We wish we could have given the entire speech of every member we quoted, but those speeches can be seen in the Journal to which we referred your readers,—Yours, &c.,

A. W. S. CROSS,
H. D. SEARLES-WOOD,
Vice-Presidents R.I.B.A.
GEORGE HUBBARD,
SYDNEY PERKS,
Hon. Secs.
R.I.B.A. Defence League.

International Theatre Exhibition.

To the Editor of THE ARCHITECT.

SIR,—With the co-operation of the British Drama League and other societies and individuals connected with the stage, the important Theatre Exhibition, which was recently held with great success at Amsterdam, is being transferred to London. Several galleries of the Victoria and Albert Museum are being set aside for this Exhibition, which it is hoped will open early in June.

The authorities of the museum are responsible for all matters relating to administration. A fund to cover expenses is being raised by the British Drama League; and in all questions relating to selection, decoration, hanging, &c., the museum is being assisted and advised by special committees.

The Selection Committee hopes that artists who have done work for the theatre will submit drawings or designs (for scenery, stage-setting, costume, &c.) not exceeding six in number. These drawings should be labelled "International Exhibition," and delivered to the Victoria and Albert Museum on any day up to and including April 30.

Those who wish to submit a model (which must not exceed half-inch scale) should apply, in the first place, to the General Secretary, Mr. Martin Hardie, R.E., Victoria and Albert Museum, S.W. 7, who will be glad to give information on this and other points.

An application form, which should be signed and sent with exhibits, or before their despatch, will be supplied, on request, by the General Secretary.—Yours, &c.,

CECIL HARCOURT SMITH,
Director and Secretary.

Victoria and Albert Museum,
South Kensington, S.W. 7.

"The Speculating Builder."

To the Editor of THE ARCHITECT.

SIR,—At the recent conference of builders at Nottingham it was suggested that the time had come for the speculating builder to provide houses for the community. The repeal of the Rent Restriction Act, the termination of State and municipal housing, and the financing of the small speculator being the conditions considered essential.

These conditions are obviously essentials, but others of even more importance have apparently been overlooked.

The number of occupiers who own their houses is about 5 per cent., so before adequate housing is possible the investor must be brought into the proposition.

Investment building was practically dead and buried long before the War, which merely helped to cover the grave.

Taking the cost of house-building at double pre-war, or even less, it is more than doubtful if double rent, under present conditions, can revive a form of investment which was killed by the same conditions, in a comparatively mitigated form, years before the War. Is double rent possible? Take the man with £3 a week wages; he cannot be expected to pay more than 10s. a week for his house. It is possible to build him one to let at this price, but who is to pay the rates? The occupier cannot, and neither the investor or speculating builder can afford to be philanthropists. The average rates for the whole country come to just under 15s. in the £1, and at Ebbw Vale and Norwich they amount to 35s. and 26s. respectively.

Go slightly higher up the scale—the £300 a year man. Allowing that in some districts he can find £50 a year rent to satisfy the investor in house property, how can he face the "super-rent" of anything from £30 to £50 in addition.

So long as the expense of purely national services is indiscriminately planted on local authorities there is no chance of any substantial reduction, the only form of economy open to the latter being the sacrifice of local amenities which are the ratepayer's only return for his money.

Moreover, the income of local authorities is dependent on new buildings, and is actually falling off year by year in consequence of inactivity in the building trade. This means *increase* of rates on existing assessments.

Many years ago some financial genius, of the type who evolved our own method of local taxation, placed a "hut tax" on the natives of our West African possessions. The natives promptly decided to live in the open and let the huts fall down, with the result that the tax was dropped. This is precisely what is happening to-day in our midst, although through the climate and police regulations we are compelled to substitute overcrowding and slum dwelling for the simple life in the open.

It is only necessary to notice the scramble to get rid of all classes of house property, at prices considerably less than it will ever be likely to build again, to realise the futility of attempting the housing of the community under existing economic conditions.

After the experience of the past three years we cannot hope for much from party politicians or super-social reformers; but it is most disappointing when practical men depending on the building trade for their livelihood wilfully ignore the vital facts.—Yours, &c.,

E. G. HOLTOM, F.R.I.B.A., M.S.A.

Holt, Norfolk,
April 13, 1922.

Unemployment in France.

To the Editor of THE ARCHITECT.

SIR, According to official statistics the number of unemployed is diminishing gradually, but regularly, in France. The number of unemployed receiving State subsidies is at present a little under 10,000, or about 7,500 men to about 2,300 women workers. In the Seine department the number is about 6,500. Paris having about 3,500 of this number, the other departments, such as the Rhone, counting about 1,200 unemployed, the Loire Inférieure about 450, and the Loire about 400. Of course, these figures do not comprise such temporary unemployed not receiving State subsidies. Of such unemployment, temporary or accidental, there is but little, for in the building trades workmen and labourers who have not found sufficient work in Paris and its district, where there is practically very little building work going on, are being employed to a certain extent in the devastated areas, and others have simply remained in, or returned to, the rural districts, where their friends or families can for the present provide them sufficient work of helping in the fields and farms, on their own pieces of land. This is interesting when unemployment in other countries is compared; of course, France being largely agricultural and all ground is own property and not leasehold, work for those otherwise unemployed in the towns can nearly always be offered them by their families or friends.—Yours, &c., ARTHUR VYE-PARMINTER.

62 Rue de Prony,
(Parc Monceau),
Paris.

"The Architect" Fifty Years Ago.

APRIL 20, 1872.

THE HOTEL DIEU, PARIS.

The Municipal Council of Paris has voted two millions (80.000*l.*) for the completion of the new hospital. The result was not obtained till after a long debate, in which several members of the Council expressed the wish that the building could be appropriated to any other purpose but that of an hospital, for which they consider it unfitted. The opinions of architects and medical men seem to be pretty nearly unanimous respecting the new Hôtel Dieu, and the Council expressed the hope that new hospitals of a very different character might soon be built. One, in fact, is about to be built at Menilmontant, which, it is hoped, will be a model for such establishments as regards space and ventilation, although, to use the grand adjective, it may not be monumental.

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The Playground and its Place in Town Planning.

By A. C. Holliday.

With the preparation of many and varied town-planning schemes virtually under the control of local authorities, sociologists wonder to what degree of consideration the welfare of our future citizens will be as regards playgrounds. Unlike America or Germany, this country has no playground association or similar organisation to carry on and develop this work. Certainly we have in many of our large towns open spaces where unorganised and unsupervised play is carried on; but in the majority of cases these are ill-planned, unequipped, and totally inadequate to the demand.

In the past there was plenty of room for the child to grow up in the gaps and interspaces, but now our big cities are so overcrowded the child has scarcely breathing room and no play space: we have gone far to civilise the business of play out of existence. The cities of our forefathers were, as Thackeray terms them, "cities of magnificent distances." To-day ground is sold by the square foot, and every inch is utilised for factory, store, street, or railway track. Under our new housing regulations even the back alley has been abolished, that paradise of adventure; the modern city child has lost his most precious birthright, the back yard. Lawns, flowers, and allotments have taken the place of the yard, with its brick-bats, barrels, and boards. We cannot grow two crops on the same soil; either the grass must go or the children must go. No place for play, no place for the child. Even streets are more impossible as playgrounds than ever. In the sleepy old times children could play on them with perfect safety all day long, but now, with the street-car track down the middle, delivery wagons along both kerbs, and motor-lorries all over the roadway, they are about as suitable for a play-place as the track of a main railway line. Besides these losses there is the loss of the small shop where work was done by the local carpenter, the blacksmith, the wheelwright, the tinsmith, and the boat-builder. These haunts are now taken over by the huge factory where a child is neither admitted nor wanted, except as a stunted and overworked labourer before his time.

Confessedly there is a great work to be done. This can only be successfully carried out by the formation of a playground association composed of earnest and properly qualified men and women who are interested in, and familiar with, the philosophy of play, legislation for playgrounds, the difference between records of efficiency, and willing to entrust the designing of such playgrounds in the hands of a capable architect, preferably one with a knowledge of landscape design. Briefly their objects would be:

(1) To promote the play spirit through festivals of play, sport, folk-games, and national dances.

(2) To investigate city conditions with reference to playground extension, to secure more sites for playgrounds and recreation centres, ensuring a practical, even, and correct distribution.

(3) To encourage outdoor life and an appreciation of natural beauty.

(4) To incorporate people who are willing to act as supervisers.

A public-playground system of this sort would be a valuable adjunct to the official programme of any city. No matter whether it is conducted by a private body as suggested, a school board, a park committee, or a city council, it is paramountly a constitution wherein a great deal or very little efficient work may be done, with the general appearances being the same in either case.

Most towns under the compulsion brought about by the 1919 Town Planning Act are making an attempt to bring the park system to the highest state of natural beauty as regards landscape adornment and the cultivation of trees, shrubs, and flowers. They must also minister to intellectual and athletic needs of the people, especially the children.

The great obstacles in the way preventing the proper development of playgrounds are, first, the prejudice, parsimony, and narrow views of certain classes of taxpayers; second, the clash of selfish interest in their location and distribution; third, the hostility of immediate neighbours. In overcoming all these it is impossible to over-estimate the power and influence of civic clubs. The united action will become irresistible in determining the approximation adequate for proper maintenance and extension.

Location.

Suitable sites are generally found on triangular-shaped pieces of ground, too expensive for building purposes, long, narrow strips, and in between blocks of houses. Where a regular site is obtained it is not necessary to waste the road frontage; buildings may be built with advantage practically enclosing the whole site. Again, playgrounds should be considered in relation to social centres, and particularly civic clubs. A special map should be prepared, showing clearly all the public playgrounds owned by the city; from each should be drawn a half-mile efficiency-serving circle for small playgrounds. It has been found by experiment this is about as far as a child will walk. The larger recreation centres a mile efficiency circle will suffice. This diagram brings out clearly the neglected portion of the city, and shows at a glance where playgrounds are most needed.

The Design of the Playground. Uses.

Once we have got the site we must consider its uses. The complete playground may almost be said to provide for all outdoor recreative activities which can be properly carried out in a reasonably small area in the heart of the city; these will not only serve for children, but for adults as well. A small playground must provide for organised play, and unorganised play for the smaller children, and accommodation for mothers and sisters who must be with them. It may be a concert groove and a meeting-place in the evening, when people of all ages flock to the nearest open space to enjoy the air and cooler breezes. Playgrounds are generally more efficient in proportion to cost when they are scattered in numerous recreation centres, near the people they have to serve, rather than when they are associated with large landscape parks. There are undoubtedly good arguments in favour of providing playground facilities in connection with the large parks. Wherever this is done it is a wise policy to design the layout so that it will be perfectly evident to any intellectual observer that these are two distinct tracts of land—a playground and an adjacent landscape park, not a utilitarian and relatively unlovely playground in a landscape park. Never put into a park what does not upon the whole contribute directly or indirectly to the public enjoyment of that particular kind of scenery. If for reasons which are already convincing some such thing incongruous with the scenery must be placed in the land which is part of such a park, there should be a distinct decision to withdraw either portion in the whole of the park from service as primarily a place of scenic beauty, and to devote the land so withdrawn primarily to certain utilitarian purposes, retaining only such beauty of scenery as is compatible with the efficient accomplishment of the utilitarian ends.

General Treatment.

The playground is not a park; it represents something entirely different in the life of the city, and it should be physically quite distinct. Park features are not desirable in a playground; parks are individualistic and playgrounds communal in their appeal. For this reason and for others more concrete the design of a playground should be formal and its treatment architectural. The general character should be pleasing, without elaborate detail; all naturalesque planting should be avoided. An appeal to the sense of beauty should be made through its symmetry and order.

Arrangement.

Make your playground as shipshape, as orderly, and as attractive in appearance as possible. Combine them

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as far as practicable with facilities for other kinds of recreation not primarily dependent on the quality of the scenery, but still make that scenery as pleasant as you can without waste or loss of practical efficiency. When dealing with a piece of park land the prime purpose is to give enjoyment of its beauty; do not on any account thrust into it a playground or any other so-called "improvement" which will impair its beauty. While arranging the main divisions of a playground it is well to allot one portion to boys from five to fifteen years of age, and one of equal size to children under five years, together with girls of all ages. Each division should be fenced, and no provision should be made for boys over fifteen in small playgrounds, for they are supposedly able to go to the larger recreation centres and rural parks. How much of the whole should be given up to general use it is difficult to say, but probably one-half, for in this space will be much organised play, and here, too, can be sand piled for the little ones. Wading pools might be in this portion, but they are not suitable for very small areas.

Entrances.

One entrance is better than two; one entrance keeps the playground from being used as a thoroughfare and cross-cutting, which is very objectionable, and makes it easier to police, to close, and to deny entrance to undesirable people. When two entrances are unavoidable these should be joined by a direct straight path.

Landscape Treatment.

All planting should be formal, and part of the scheme, trees in straight rows on narrow strips of well-fenced grass forming a shady concourse. Clipped hedges of yew, holly, or hawthorn, and trees in tubs, barrels, or pots, will be strictly in character. Tree guards, tree gratings, benches, fountains, fences, and even waste-paper baskets should be carefully designed details of the scheme. Benches should be fixed, strongly constructed, low and broad, frequently divided by arms; the small sections make them less tiresome, and discourages the use as a running track. The material of which walks are made depends largely on local conditions and use; gravel is much more pleasant to walk on, better in colour and much cooler in summer than concrete or asphalt. Wherever the entrance may be, it should not be stealing play space; if a few feet or inches on either side be given up for growing something it will make it pleasant and inviting. Put a little splash of colour, say, with berry and leaf, and it is beautiful all the year round. Perhaps, instead of ugly gateposts, pyramidal arbor vitæ can stand on either side. The boundaries of the plot do not need a base wall or fence; a formal hedge in mixed shrub planting according to local conditions. Disagreeable boundaries such as old sheds or a railroad can be screened by planting, and a base wall that seems discouragingly uninteresting can be in many cases clothed with creeper; anopelopsis is a good one to use, with a fringe of hollyhocks studding it with colour. Perhaps this will seem a very rudimentary sort of landscape gardening, but if we can get the frame our picture will be satisfactory. If besides this we dignify and give a pleasant emphasis to the entrances, it will go far to add to the general composition.

Then there is the matter of buildings, these are the dominating note of the space, and can be treated as the culminating feature of the architectural lay-out. They ought to be planned at the very start, when the walks are to be laid, the flagpole located, and the grounds perhaps graded. Near the main building, be it a field house or a bandstand, it might be arranged that a little formal garden could be fixed at this point. Do not be wholly dependent on flowers, shrubs are much more satisfactory. We should have lilacs, syringa, dogwood, laburnum, hawthorn, rhododendrums, azalias, roses, red currants, in fact all the gay foliage we can mass together successfully, this will act as a crown to the composition, the glory that goes with the propriety of setting and adequacy of support.

The Play Spaces.

These are, of course, what the playground are primarly for, our plans have not trespassed upon them. On these grounds there should be some trees, they will not in the least interfere with the play, for they are most useful as bases and goals. Trees with their beauty and shade may even add to the play possibilities of the space. In a well-equipped playground there should be a space specially allotted for very small children; here a wading pool and sandpits are provided, the pool gives infants delight, its social service is such that almost any æsthetic shortcomings of which it might be guilty could easily be forgiven. A pergola at one side or one end of this enclosure makes a shady place where mothers can sit and watch their children, and incidentally makes a pleasant picture.

Equipment and Apparatus.

The first is the jumping pit. An excavation ten or more feet wide, thirty or more feet long, three feet deep at one of the narrow sides, running diagonally upward to the upper edge at the other narrow end. The sides of this pit are made secure by stout planks and properly prepared to withstand moisture. The bottom of the pit should be covered with at least six inches of sand.

The second is the balancing tree—a large and perfectly straight tree, freed of bark and rounded off; it should be, if possible, thirty feet long. It is supported by two or three wooden feet at the extreme thick end, the other one sufficiently far from the thinner, and to allow the other end free play to swing, height from the ground one to three feet. This tree may be used for deep jumping and for vaulting of all kinds. In the more solid parts of the tree holes may be drilled and pommels may be fastened on it, then we have it serve all the purposes of a vaulting-horse. The third is the hillock, a small elevaiton on the playground two to five feet high, three to six feet at the base, tapering off toward the top and well covered with turf. Used for jumping, hurdling, pole vaulting, and invites war games. Other simple forms, such as the climbing poles, &c., cost but little to install, are well-nigh indestructible, cost therefore little or nothing for repairs, take up little space, lend themselves to a thousand and one uses at the hands of the playground instructor, and, what is still better, suggest as many or more uses to the child himself. Other apparatus more expensive is easily obtainable, the best of which includes a canvas-covered gymnasium frame with free moving space in all directions; vaulting-horses, parallel bars, high and low swings, teeter ladders, see-saws, giant strides, and a merry-go-round. There should be wooden platforms under the swings, the ground should be dug out and the space filled with sand under the gymnasium frame, jumping pits, and at the ends of see-saws and teeter ladders. A field house should be centrally located, having entrances on each side, approached by walks boarded with trees and hedges which make the division between boys' and girls' playgrounds. It should have separate wings for the two sexes, containing showers, toilet and dressing-rooms. These wings are best on two sides of the swimming pool. The boys' portion of the playground should contain a running track, hundred yards dash, football and cricket grounds, quoits, and ample space for other games. The girls' space should have accommodation for basket ball, croquet, hockey field, and similar gymnasium as the boys. The very small children play in this portion, a sheltered place is best with sand tables, benches, baby hammocks, blocks, and toys.

The value of playgrounds is easily understood by all. Undoubtedly there are many difficulties to overcome, corrections to be made, and administrative improvements to be brought about through a wider experience with the problems presented. These eventually will be accomplished, for a movement fraught with so many possibilities for good will not be retarded by these objects which time will overcome. Any city administration would gladly cooperate with philanthropic citizens in this field of municipal development.

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Studies of the English Sculptors from Pierce to Chantrey.

XII.—Louis Francois Roubiliac (1695-1762).

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STATUE OF HANDEL BY ROUBILIAC. Formerly in Vauxhall Gardens.
[By permission of Messrs. Novello.

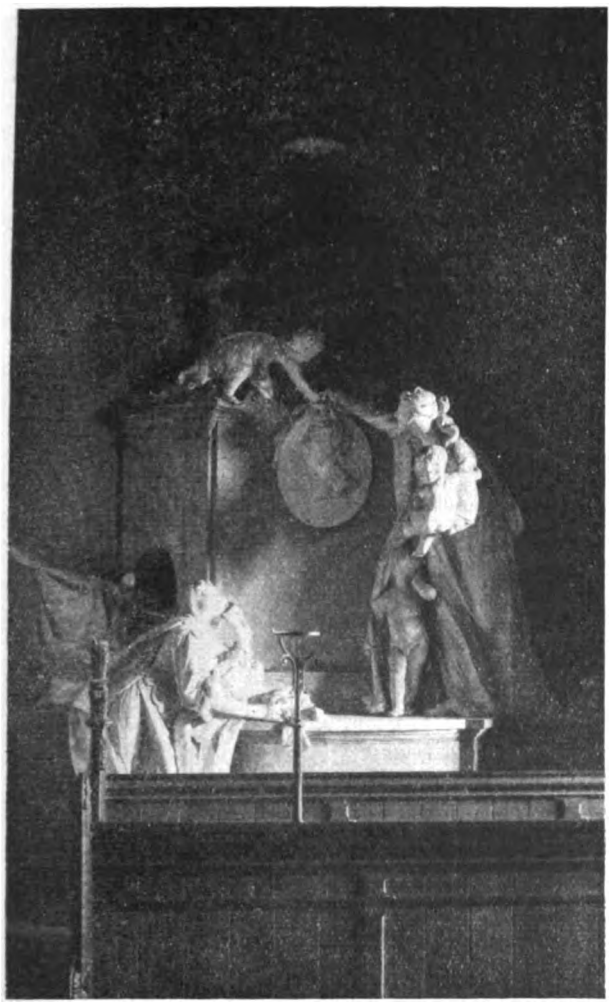
To look into the history of Roubiliac is a bewildering task. There are unexplained gaps in his life, and his only serious biographer, M. le Roy de Ste. Croix, whose book, now very scarce, appeared in 1882, is exceedingly inaccurate and incomplete. The critics of the biographical dictionaries are even more unsatisfactory. Dussieux's "Artistes Français à l'Etranger," for instance, states that the tastes and methods of Gothic sculpture prevailed in England before the advent of Roubiliac; and the recent Allgemeine Künstlerlexikon (1901) states that Roubiliac only came to England in 1744. No work of his was shown at the Exposition Retrospective des Artistes Lyonnais held at Lyons in 1904, although as long ago as 1887 his name was given in the Catalogue Sommaire of the Lyons Museums as one of those "Lyonnais dignes de mémoire dont les bustes restent à exécuter." Finally M. le Roy de Ste. Croix actually sends his hero to Protestant Germany for conscience' sake after the Revocation of the Edict of Nantes, which took place ten years before he was born. It is for us to see what can be made of the evidence, literary and monumental, that these authorities have neglected.

Louis François Roubiliac is known to have been born at Lyons in 1695; to have become a pupil of Balthasar Permoser, an eccentric but competent sculptor at the Court of the Elector of Saxony, to which Permoser himself had only gone in 1710; to have sent groups into France as examples of his powers, though no work of his in that country can now be traced; to have then gone to Paris as a pupil of Nicolas Coustou, nephew of Coysevox, himself a native of Lyons; and to have come to England either some time after 1730, or possibly, according to Alan Cunningham, in 1720. He is said to have contributed a group to the French Academy of 1730, for which he was awarded second prize; but this "Daniel saving the chaste Susannah" cannot now be traced, and, as we shall see, must in any case have been sent from England, since we shall find definite evidence that Cunningham's hesitating 1720 is most probably correct. Cunningham, who knew all the studio gossip of his day, says that two stories were current, one representing Roubiliac arriving in this country in the vague hope of receiving the patronage so freely accorded to foreign sculptors; the other, and more romantic, that an English traveller in France saw some of his work as a youth, took his name and address, recalled the incident some years later when consulted by a friend as to a sculptor for a proposed monument, and summoned Roubiliac to England, promising him the commission. As his French Academy subject received the prize in 1730, as no one has hitherto identified any work of his earlier than the Handel of 1738, and as he is known to have worked in the studios of Carter and Cheere, this story has been generally discredited; but we shall find ample evidence that he was employed on important works long before the Handel hitherto described as his first work in England, and may therefore assume that there may be truth in the more romantic story, and that at the date of the Daniel and Susannah the sculptor had long been in this country.

In the first place we have Vertue's evidence, taken from a notebook of 1737-8: "A Sculptor of some merit has several years been in England; and labouring to gain reputation has lately, as mentioned in the newspapers, made a Statue in Marble of Mr. Handel the famous master of Music and great composer of Operas, &c. This Statue was made to be set up in Foxhall gardens by . . . Robullac a Frenchman sculptor born in Switzerland or some part of it, but had been many years in France and there made his studies. I have seen a model in Clay the portrait of of Farranelli [*sic*] the famous Singer very like him, well done; a bust of Sr Isaac Newton, one of Oliver Cromwell, &c., this Statue of Handell is well wrought and with much art, when consider'd." Here, then, we have the evidence of an eye-witness that Roubiliac had been in England for a considerable time, and had done a considerable amount of original as well as journeyman's work long before the Handel. The next Vertue note is dated 1741, "Mr. Rubbillac Sculptor of Marble besides several works in Marble moddels in Clay, had modelld from the Life several Busts of portraits [*sic*] extreamly like—Mr. Pope, more like than any other Sculptor—has done I think Mr. Hogarth very like—Mr. Isaac Ware architect, Mr. Handel [probably that at the Foundling Hospital]' &c. and several others; being very exactly Imitations of Nature." A few years later Vertue notes that "Rubillac" was one of the sculptors who, as already mentioned in connection with Rysbrack, competed unsuccessfully for the sculptures of the pediment at the Mansion House, and as we have also seen in the chapters on Rysbrack and Scheemaker, it is to Roubiliac, together with those two sculptors, that Vertue attributes the enormous advance of English sculpture in his time. Here are further passages on the subject: "Of all the Arts now practized in England none has shone late years more apparently than that of Sculpture or Statuary workes.—of that kind of Artists three or four different Masters have established a reputation here equal to any others in foreign Cittys or countryes, from whence these Artists came have indeed learnt and brought their skill with them by the English encouragement and rewards have succeeded here beyond what was in former times

For preceding articles of this series see:—Introductory Article, July 1; Nicholas Stone (1587-1647), July 8; Edward Pierce (ob. 1698), Sept. 2; Caius Gabriel Cibber (1630-1700), Sept. 16; Grinling Gibbons (1648-1721), Sept. 30; John Bushnell (d. 1701), Oct. 7; Francis Bird (1667-1731), Oct. 21; Peter Scheemaker (1690-1771?), Dec. 9; Peter Scheemaker (*cont.*), Feb. 10; John Michael Rysbrack (1693-1770), Mar. 3; John Michael Rysbrack (*cont.*), April 7.

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MONUMENT TO THE DUKE OF MONTAGU, WARKTON, NORTHANTS.

practized, except some few men, whose workes do subsist to the present Time.

" But for these four Artists Sculptors now, and has been some years in practice I can't well tell to whom to give the preferance, indeed Mr. Michael Rysbrake, above 25 years ago began and made the greatest progress and most excellent works.—and from Time to time gave and supported his reputation in Art as a most excellent Sculptor and so continues. after him Mr. Delvaux (staid not long) and Mr. Scheemaker has since made great improvements and many noble works.

" But the last of them (who had been long struggling for reputation) did some good works, heads, monuments of Marble but now having compleated the grand Monument for the late Duke of Argyle, erected in Westminster Abby therein Mr. F. L. Rubilliac Sculptor, has shewn the greatness of his Genius in his invention design & execution in every part equal, if not superior to any others this Monument now outshines for noblenes & skill all those before done, by the best sculptors, this fifty years past.

" therefore wee may observe as those works of Monuments is the best paid, of any works of painting history, portratture, Landskips conversation chaseing or Sculptor Graving—the professors of real merrit will come over & study to excell for such profiits and rewards, which amount to great summs of money, as such monuments have cost some five hundred pounds each, some 7 or 8 hundred, some a thousand & some some hundreds more.—by reason of which it may be concluded that so long as that vanity or humor remains in the minds of the noble and wealthy persons, their will be works to be done hereafter of the same kind. This Mr. Rubilliac is a Frenchman born in Normandy. has been many years in England."

" in this Month of May 1749 was finisht and erected in Westminster Abbey church the Monument of the Duke of Argyle. which being the work of Monsi F. L. Rubilliac. Sculptor and Statuary. who having been in England many years—born in France but came to settle here at least 20 years past haveing but small encouragement at first improveing here in practice study and reputation, whilst Mr. Rysbrack statuary had all the most considerable imployments of that kind—and after him Mr. Scheemaker had also the run of Busines in making Monuments with other works, after he had done the monument of Shakespear. This Mr. Rubilliac scarse had any considerable Capital work till this noble Mont of the Duke of Argyle. which being of a grand composition strikes the spectators with admiration, for its work and loftiness the beauty and richness of the Marble, &c., is beyond all others, but to speak of the Sculptors skill and artfull performance, I observe the whole is masterly, in the design Noble & Grand—the attituds of the statues each well disposed and contrasted at the Top.

" writing the Epitaph an action of this figure light gentill and expressive. the Cumbant statue of the Duke reposing on same—in a Roman habit, has great dignity—the ornaments allusions well disposed on the right side—the Standing figure of Eloquence has great beautyes in the attitude, and the Draperys well folded and admirably well executed—soft and silky—the air of the heads, the hands feet truly well done also on the left, the sedant figure of pallas—nobly dispos'd—the body and limbs well contrasted and the Draperys and foldings truely natural and excells all others in skill and softness of plaits really more like silk than Marble.

"in the front of the pedestal the bass relievoo—curious and expressive as is well described in the Magazines of this Month, and there is also publisht, the Monumental Inscriptions—to which, may be referrd for the Satisfaction of the Curious these Sculptors here of reputation with some others, not so remarkable, have established now that art here is in as much esteem as in other polite Countreys."

In August, 1749, Vertue gets hold of another story. " Mr. Rubillac, sd to be born at Lyons in France, that he went to Liège, where learnt his art &c." One can only conclude that Vertue was an adept at picking up the studio gossip of his day; and it is clear that he had no such personal intercourse with Roubiliac as he had with Rysbrack, since his accounts of him vary so much. There is some excuse for his variations on the sculptor's name, as he is known to have spelt it in three ways himself. On the monument to Sir Peter Warren and many others he writes it L. F. Roubiliac; on that to the Duke of Argyll, for example, it is written Roubillac; and on the Charles I. at Matson Roubilliac; but the first is the commonest, and also the form adopted by himself in the verses published in the " St. James's Chronicle " in the year of his death, and it is this form, the most familiar and the most often used by himself, that we propose to adopt here.

Vertue, as we have seen, says in 1749 that Roubiliac had been in England " at least twenty years past." What, then, was he doing, and can any of his work here earlier than the Handel be identified?

At Quainton, Bucks, in a cramped position under the church tower, is a superb monument by him representing the Dormer family, with the following inscription, now very faint: " This Monument was begun by the direction of Mary Dormer his widow in her lifetime, but she dying before the same was finished, it is now erected (but at her sole expense) and consecrated by the daughters and their husbands to the Memory of their Dearest Father, Mother and Brother, Anno Domini 1731." Some preceding inscription is evidently obliterated, but as Mary Dormer died in 1728 it is clear that she must have given personal directions to the sculptor between 1726, the date of the son's death in whose honour it was originally erected and the year of her own death.

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The monument, little known as it is, is the quintessence of Roubiliac. The father, the Hon. Robert Dormer, Justice of the Court of Common Pleas, stands in wig and robes, looking down at the prostrate son whose death in 1726 killed him; at the other side kneels the weeping mother, veiled and in conventional loose drapery, with bare feet; the son, Fleetwood Dormer, lies on his deathbed, a figure of exquisite beauty and pathos, one of the masterpieces of sculpture of any period; and, though the mother's handkerchief and realistic sorrow are artistically unsatisfactory, her hands and feet are marvellously fine, and bear the hall-mark of Roubiliac's style. The monument is apparently unsigned, but is unquestionably Roubiliac's, as tradition says; and no one who sees it can doubt that a man just over thirty who was capable of such a masterpiece as the dead son had many years of work behind him. How he got the commission is unknown, but it is well within the bounds of possibility that it is the very monument referred to by Cunningham which caused Roubiliac to be summoned to England.

Another monument also attests the sculptor's early connection with Buckinghamshire. At Gayhurst is a magnificent monument, like the last unknown to the biographers, to Sir Nathan Wrighte, King's Serjeant and Lord Keeper of the Great Seal (ob. 1721), erected by his son George Wrighte of Gayhurst. Father and son appear together, the one in full robes, the other in plain gown as clerk of the Crown. There is no inscription, and the monument is undated, but there is strong presumption that it would be erected within a few years of the father's death, and shortly after the son transferred the family seat from Caldecote (where Sir Nathan is buried) to Gayhurst. Roubiliac was working at the neighbouring village of Ravenstone when he was summoned to Gayhurst, as the vicar, the Rev. W. Stafford-Jones, has been good enough to inform the author.

Here, then, are two important works, both of which must precede the incidents now to be narrated, with which Roubiliac's life in England is popularly supposed to begin.

As the story is usually told, he entered the mason's yard of Thomas Carter at Knightsbridge and did journeyman work there until one fortunate evening when in Vauxhall Gardens (opened to the public in 1732) he picked up a pocket-book, a bundle of papers, and bank-notes of considerable value, and by advertising discovered the owner, Sir Edward Walpole, the eldest son of Sir Robert. He refused all reward save half a buck annually with which he used to feast his friends, and his disinterestedness gained him cordial recommendations on Walpole's part. Horace Walpole, who says very little of him, is, however, clearly wrong in saying that he had little business till his brother's recommendations brought him into notice. Not that Sir Edward's patronage was valueless, any more than it had been to Samuel Scott the marine painter; far from it, for he introduced him to Cheere and "recommended him to execute half the busts at Trinity College, Dublin" (a statement on which we shall comment later). He certainly did execute the famous bust of Swift, which was presented by the Senior Sophisters of 1738,* and was justly described in the Dublin Journal for March 21, 1749, as "done with exquisite skill and delicacy, and is looked upon by persons of taste as a masterpiece." The sculptor's name is there given as Ruvillac.

Walpole's story of the original introduction to Cheere, no mean sculptor himself, and the proprietor of a large sculptor's yard at Hyde Park Corner especially celebrated for its leaden figures, is confirmed by J. T. Smith's father Nathaniel, himself a pupil of Roubiliac, and may be taken as unquestionably authentic. When his friend Tyers, the proprietor of the Gardens, consulted

* *Ex Dono Quartae Classis an:* 1745 *procurante Digbaeo French* is the inscription on it.



MONUMENT TO THE DUKE OF MONTAGU IN WARKTON, NORTHANTS.

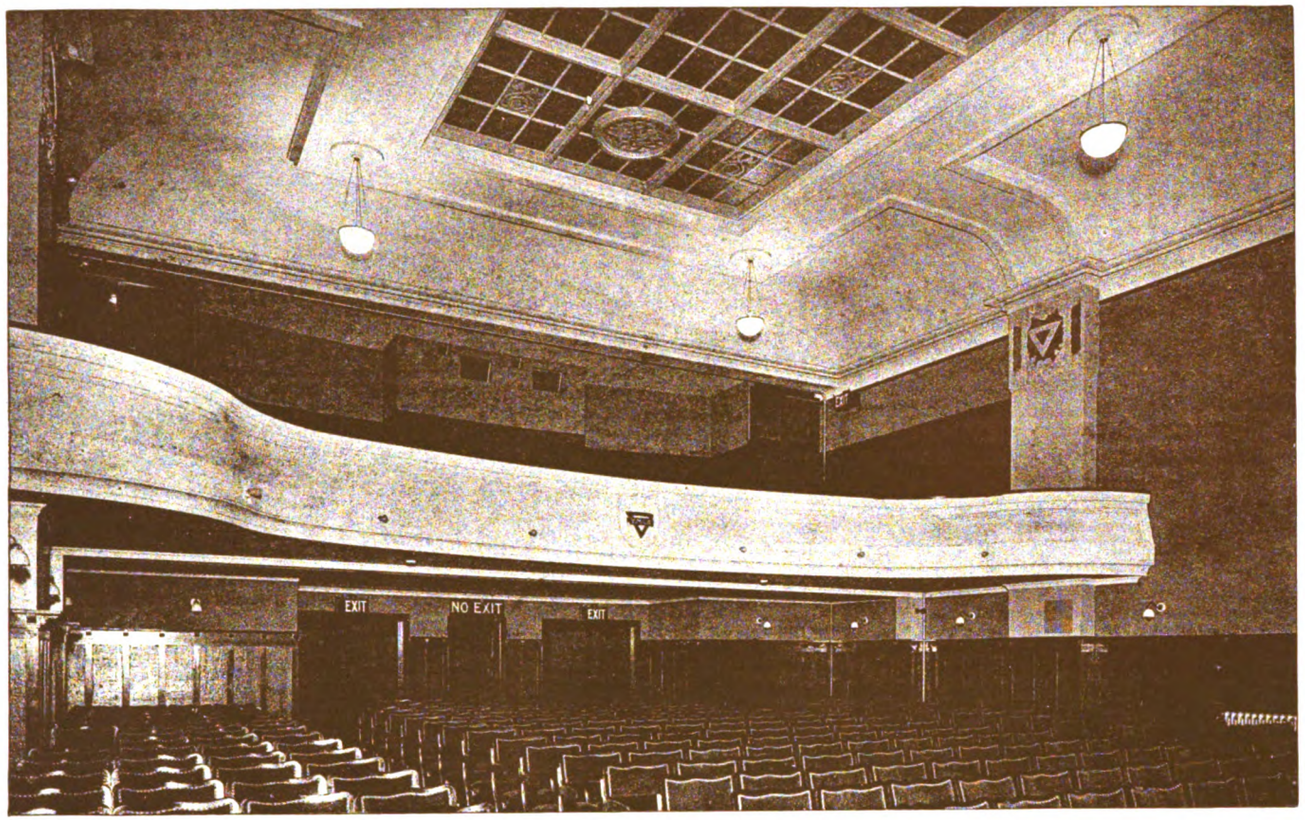
Cheere as to the wisdom of adorning the place, one of the great attractions of which was its music, with statues, Cheere suggested a statue of Apollo, adding, "What do you say to a figure of Handel?" Tyers hesitated on the ground of expense; but on Cheere's saying, "I have an uncommonly clever fellow working for me now, introduced to me by Sir Edward Walpole. Employ him, and he will produce you a fine statue," they went to see Roubiliac, who undertook the commission, and received £300 for a work which Nollekens long afterwards pronounced to be worth a thousand guineas. The Handel was an instant success. Crowds went to see it under its "inclosed lofty arch," and it was long one of the attractions of the place. The composer, a figure under life-size, was represented the embodiment of poetic passion, seated in the character of Apollo playing on the lyre, with a boy, the Genius of Music, taking down his notes. Above the alcove was a group representing Harmony with two genii (or St. Cecilia and the angels). Handel is sometimes said to have sat to Roubiliac in Vauxhall itself, but probably went to Roubiliac's studio. This was followed by a second commission from Tyers, also for Vauxhall, a "Milton in lead, listening to soft music," *à la* Penseroso; but de Sainte Croix's imaginative picture of the sculptors of London, "dépassés, eclipsés, oubliés, dédaignés," thanks to the success of Roubiliac, is ludicrous when we remember the triumphs of Rysbrack and Scheemaker in the very years that followed the Handel. The history of this statue down to 1855, with a useful list of engravings, may be read in an excellent pamphlet by J. F. Puttick, published in that year; the statue was then in possession of the Sacred Philharmonic Society, and now belongs to Messrs. Novello, through whose kindness it is here reproduced.

(To be continued.)

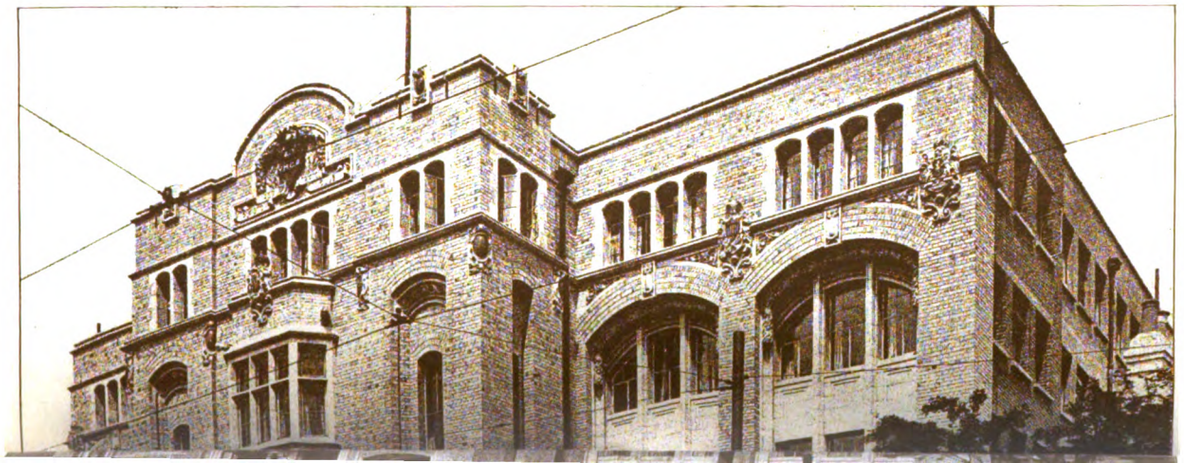
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CINEMA THEATRE.



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GENERAL LOUNGE.

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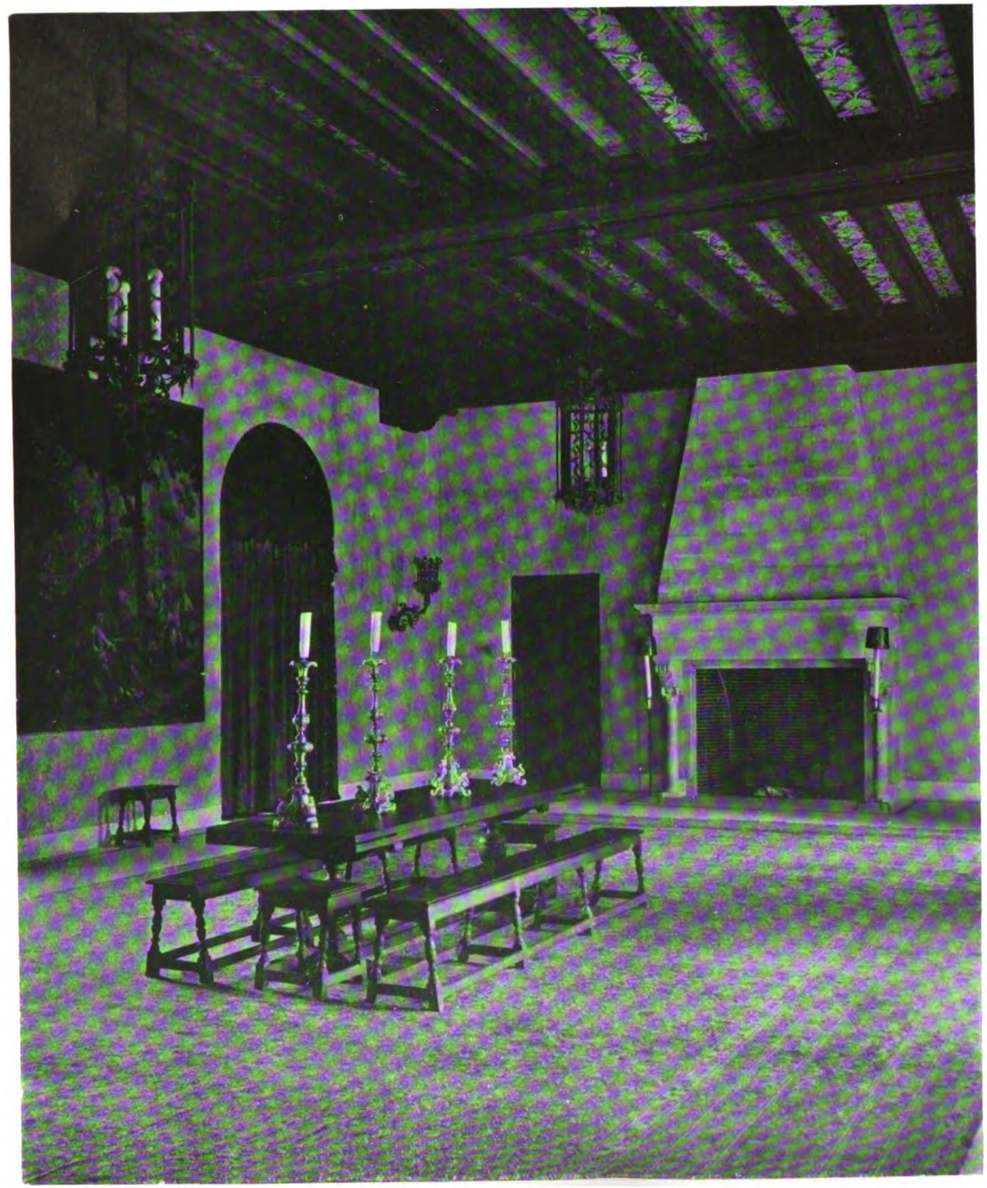
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GENERAL VIEW OF DINING ROOM.

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THE MUSIC ROOM TOWARDS ORGAN GRILLE.

ALTERATIONS AND ADDITIONS TO "SHALLOW BROOK FARM," MT. KISCO NEW YORK.

BENJAMIN WISTAR MORRIS, ARCHITECT.

[*From* The American Architectural Review.]

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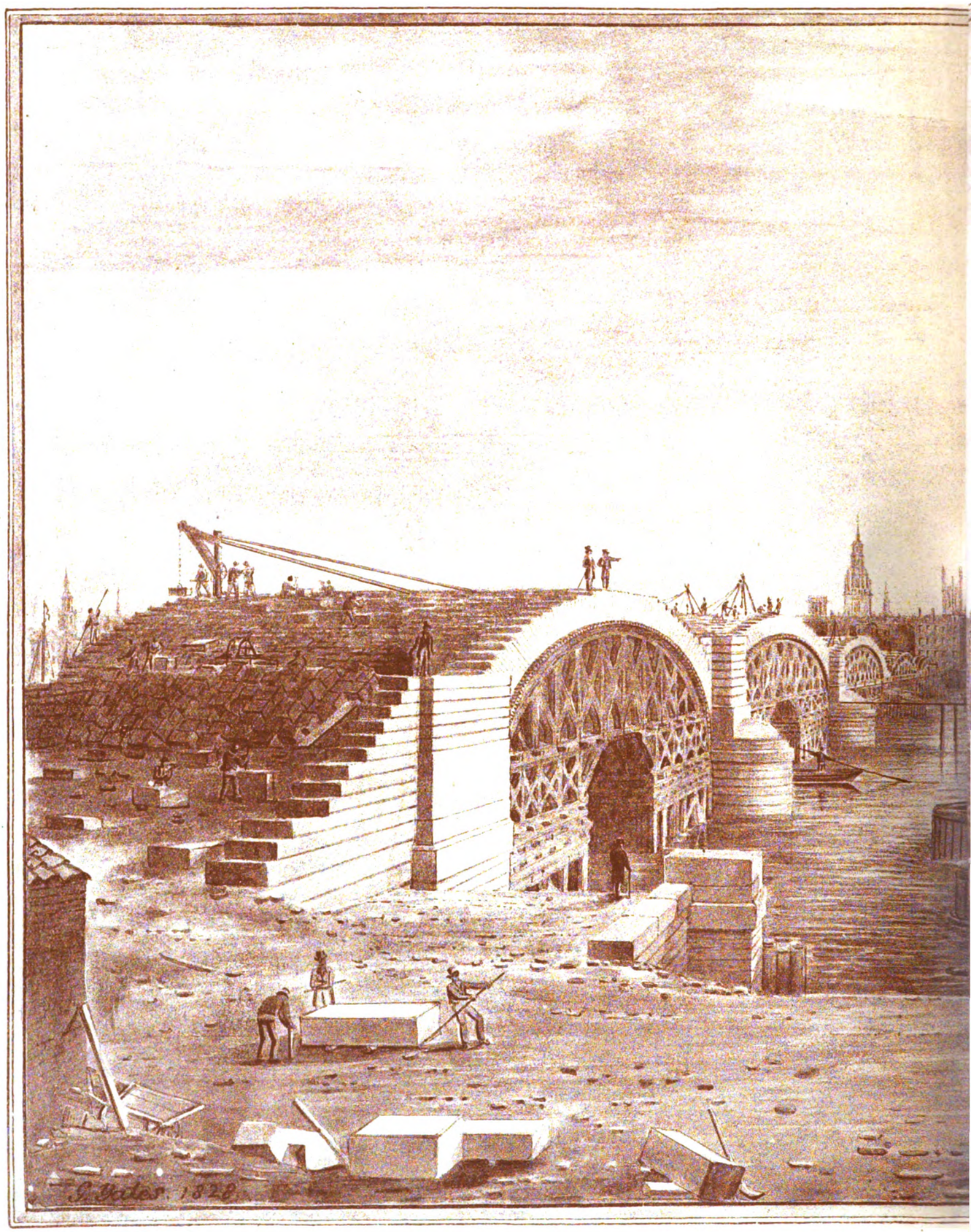
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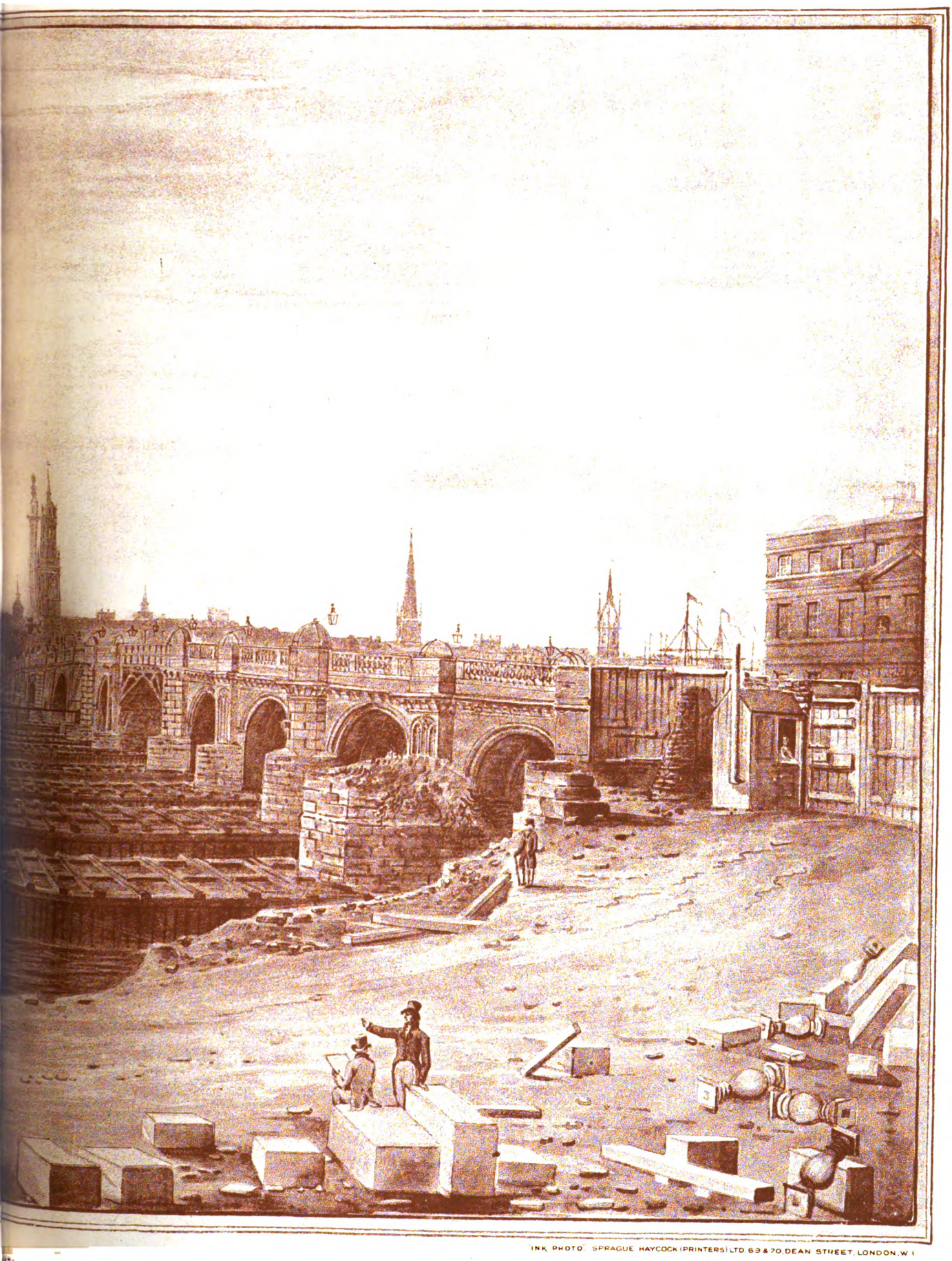
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New Books.

"Real Mathematics." By Ernest G. Beck, Wh. Ex. (London: Henry Frowde and Hodder and Stoughton. Price 15s. net.)

In his preface and introduction the author satisfactorily develops his reasons for preparing the accompanying treatise upon a subject which is too apt to be regarded as one calling for the assimilation of rules and methods, without heeding the underlying principles. It is seldom that a book of this nature so thoroughly appeals, combinedly from the standpoints of common sense, perspicuity and literary merit.

The name is perhaps sufficiently explanatory of the underlying motif of the book, which is intended mainly for the use of practical engineers, who are sure to welcome it warmly.

The chapters upon factorisation, involution and evolution, and on fundamental and derived units may be specially recommended for the valuable nature of their information and for the clarity of their exposition. In fig. 32 a few of the smallest cube indications are accidentally omitted; also on page 95, in the last formula, italic *i* should be Roman type, 1.

The practical methods suggested for the extraction of square and cube-roots are highly to be commended for practical men, for the slight errors in result are really negligible in effect.

Other chapters deal, *inter alia*, with indices, logarithms, trigonometry and equations, and throughout with the same regard for presenting the subject discussed with clearness of vision, even if at the loss of some precision.

"The Art of Illustration." By Edmund J. Sullivan. (Chapman & Hall, Ltd.) 25s. net.

This interesting book, by one of the most original of our pen-and-ink draughtsmen of to-day, is sure to attract widespread attention amongst the members of the profession, and, from the broad standpoint taken by the author, amongst amateurs and the more general public. It is written evidently with the intention, and in the hope, of raising the standard of illustrating work, which, in its more popular form, as shown in many of our magazines of the present time, has fallen to a low level, devoid of style, meretricious in design, and poor in craftsmanship.

It might be said that much of the first thirty or forty pages is extraneous to the subject, as it allows the definition of illustration to extend from Michael Angelo's Sistine Chapel frescoes to portraiture, and such chapters as "Automatic drawing and the power of suggestion" seem to have no bearing on the main theme,—but the author's views on the content and purpose of art are stimulating and helpful; and the whole book is written in a charming style and with a lucidity and power of expression which show Mr. Sullivan to possess no mean literary gift.

To a practical illustrator, however, the latter three-fourths of the book will be of the most direct interest—that is, taking "illustration" to mean a drawing done to illustrate a book or magazine, and printed along with the text in that book or magazine.

But Mr. Sullivan's predilection for pen work has led him to be unfair to work done with the brush. It is amusing to read his brief dismissal of wash drawing—almost with contempt—especially when one remembers the distinguished tone work done by such men as W. Hatherell, Frank Craig, Howard Pyle, and E. A. Abbey.

There are faults in the book in the arrangements of material. One of the most glaring is that the illustrations are placed without any reference to the text in which they are inserted, and an irritation is produced akin to that deprecated by Mr. Sullivan himself, when text and drawing do not read together.

For instance, on pages 138 and 140 are glowing descriptions of two drawings by A. Boyd Houghton, and one is almost exasperated to find inserted in the text two drawings by another artist—Menzel—and it is not till one comes to pages 205 and 201 respectively that one finds the engravings which have called forth these well-deserved eulogies.

The chapter on Botticelli, beginning on page 126, is illustrated on pages 2 and 3; that on Millais by drawings of Menzel's; that on Doré by Millais', and so on: nor does the text, except in one or two instances, give the pages on which the drawings referred to are printed.

The choice of illustrations may also be found fault with. Doré's grotesque abortions can be of little help or inspiration to a modern illustrator from any point of view; the number of Blake's drawings is excessive and out of proportion with the general subject. Much the same may be said of Menzel, while two or three of Holbein's "Dance of Death" would have been sufficient to display his special qualities of line and design. There is too little of the best modern work shown. A modern artist cannot return to old styles and methods—if he attempts to do so his work becomes more or less an affectation—but we can hope that Mr. Sullivan's book will help to give a new view to editors of magazines and help to raise modern demands to the dignity of past days.

"Wall Paper." By G. W. Ward. "Concrete and Reinforced Concrete." By W. Noble Twelvetrees. (London: Sir Isaac Pitman & Sons, Ltd. Each volume 3s. net.)

This well-known firm of publishers, in producing a series of small books dealing with common commodities and industries, deserves well of that section of the public which desires to know something of everything, and to have it supplied in tabloid form. In truth, the writers of these two books have dealt very ably with their respective subjects, saying neither too much nor too little.

Mr. Ward, within the compass of a hundred pages, has treated his subject in an entertaining manner, from its antecedents in the dwellings of the troglodyte down to and including the latest post-war developments. And, contrary to what is so often apparent, the book neither loses nor gains by the illustrations, the text in itself being sufficiently convincing. Here and there slight inconsistencies are observable; and here and there, too, there is room for difference of opinion. Certainly his perfervid views as to the dining-room (see page 58) should be taken with a grain of salt. The table on page 77 is unusually comprehensive, and correspondingly valuable. Without detracting from the lightness and brightness of the book, the language in general should be of a less florid type.

The slightly adverse criticism offered upon some aspects of the above book are not applicable to Mr. Twelvetrees' production, which is a thoroughly good, reliable and well-worded treatise *in petto* upon a subject of supreme importance at this day. There is none of the dogmatic intonation so beloved of some writers; he is prepared with a reason for every proposition advanced.

It must be confessed, however, that one cannot regard water as being "the most important ingredient in concrete," despite the explanation offered. There are a few compositors' and similar errors observable, requiring consideration in a future edition. The illustrations are for the most part such as are suitable, and if one chapter may be chosen for special commendation, Chapter VII. ("Surface Treatment of Concrete") may well be selected.

Competition News.

Members and Licentiates of the Royal Institute of British Architects must not take part in the Newport War Memorial competition because the conditions are not in accordance with the published regulations of the Royal Institute for Architectural Competitions.

The Lewis War Memorial Committee invite members of the Institute of Scottish Architects to submit competitive designs for a War Memorial, to be erected in the vicinity of Stornoway, at a cost of about £4,000. For particulars apply to the Secretary, Lewis War Memorial Committee, Stornoway.

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The Building Trades Exhibition at Olympia.—III.

Intending visitors to Mr. Montgomery's exhibition at Olympia must bear in mind the fact that their opportunity will only continue till 9 p.m. on Thursday next, the 27th inst. If they fail to take advantage of it they will have to wait for two years before another chance of seeing under a single roof so many vital things pertaining to the building industry will again occur. Presumably in 1924 the exhibition will be on a much vaster scale, for by that time the proposed extension on the Hammersmith Road side should have become a *fait accompli*. No doubt the organiser will remain firm to his principles and refuse to lower the high standard of his past shows. To do so would show a lack of business acumen. The admission of the cheap-jack element in order to fill any added floor space would undo the good work commenced many years ago and unflinchingly persevered in ever since.

The general verdict seems to be that the 1922 Building Trades Exhibition is at least equal to any of its predecessors. Some competent critics with reliable memories declare it to be the best. It is well to remember that if a trade does not actually get the trade exhibition it deserves, at any rate it must in some degree share in its merits or demerits. An apathetic public reacts upon both organisers and exhibitors. In the Building Trades Exhibitions there can be very few indeed over-the-counter sales by which stallholders roughly balance their expenses against their receipts. They may not hope for many definite orders, but they do calculate on the number and character of inquiries. Therefore visitors can assist in maintaining the quality of future shows by patronage and intelligent interest of each one as it recurs every alternate year.

Some of the Stands.

The Aerograph Co., Ltd. (43 Holborn Viaduct, E.C.) by means of a small pavilion on Stand 54, Row D, demonstrate what an excellent imitation of stone is possible with their compact apparatus. This is a full-size exemplar of their work, such as has just been carried out at Drury Lane Theatre, where the walls of both the royal and grand staircases, rotunda, corridors, and entrance hall were finished in a similar manner by the Service Department of the company for Messrs. Hampton & Sons, Ltd., the general contractors. A Service Department is a recent and logical development of the Aerograph Company's activity since 1893 as inventors and pioneers of the spray painting process. In practice it proved in certain cases more convenient to carry out work by their own skilled men than to let the plant out on hire to other firms. Complete plants have been sold outright to many large concerns like Messrs. W. Lawrence & Son, Ltd., and Bovis, Ltd., as well as to the Air Ministry, London County Council, and the Tasmania Government. The paint, varnish, distemper, or other covering material can be sprayed on simultaneously by several workmen both inside and outside with marvellous rapidity, regularity, and smoothness.

The Australia Concrete Machinery and Engineering Co., Ltd. (606-607 Salisbury House, London Wall, E.C.) are constantly adding to or improving their list of plant. The latest thing on Stand 116, Row F, is the "Speedy Crusher," a belt-driven machine for clinker, bricks and shingle, which is sold either as a complete unit with engine and crusher mounted on a portable stand, or mounted on a stand as a separate unit. The Tonkin mixing-machine may be worked by hand or belt-driven; here the power is from an electric motor, which also drives the "Speedy Crusher." Demonstrations are also given both of the Australia concrete-block and the plain slab-making machines—both are 1922 models, and include important improvements. The company are prepared to arrange practical demonstrations of their machines in operation at any time at their works in Portobello Road, North Kensington, W. 10.

Baldwins, Ltd. (3 St. Helens Place, Bishopsgate, E.C.) show at Bay 19, in the Gallery, the multitude of things produced by their galvanising department. They range from wall ties to water-cart bodies. The lines particularly interesting to the building trade are perhaps the corrugated and flat working-up sheets, curved corrugated sheets for concrete work, galvanised wrought-iron guttering, rainwater piping, and ridge capping.

Barb Enginering Co. (5 Victoria Street, Westminster, S.W., and Saltney, Chester) have in the Gallery on Stand 33, Row B, their "Wonpees" reinforcements. For a description of the system we refer our readers to this week's instalment of Mr. Lakeman's series of articles entitled "Modern Methods in Building Construction," on page 289.

Messrs. B. T. Batsford, Ltd., the well-known firm of art booksellers and publishers, are exhibiting this year at Stand 125, Row G, where they show a wide and interesting selection of English, American, and Continental works on construction, engineering, and other technical subjects, decoration, drawing and art matters, as well as their own publications.

John Booth & Sons (Queen Anne's Chambers, Westminster, and Bolton) enjoy the distinction of being the only structural steelwork firm at Olympia. Their presence is a welcome addition and not the less so because they make their début at these Building Exhibitions with an experience of over fifty years behind them. The roof of the stand, No. 35 C, is an exact half-size model of their Warren-Girder roof, which can be erected in 50-ft. spans, spaced 20 ft. apart, and combines perfect lighting, maximum floor space, and facilities for driving from the roof. Two of the bays are glazed with Hope's patent glazing, one bay covered with boards and felt and provided with Booth's "Rustless Iron" gutters. This "Warren Girder" roof has been introduced on some particularly large buildings, such as Slough Depôt and the Dunlop Rubber Co.'s new sheds and mills at Castleton—the latter cover an area of 40,000 square yards, and are probably the largest sheds in the world. Messrs. Booth also exhibit their steel fireproof doors, which they have been not only making for half a century, but which provided the standard door for the Fire Offices' Committee when carrying out tests a few years ago previous to framing their regulations. The two steel doors then tested up to 2,000° Fahr. and immediately drenched with water were so little affected they were afterwards fixed on two buildings in Liverpool and Preston, and have been in use ever since. The small office on the stand is constructed with Booth's steel and glass partitions, of which 50,000 square feet were exported to India during the last twelve months. We understand that during the war sufficient roof trusses were manufactured at their Hulton steelworks to have formed a continuous covered way, 40 ft. span, over the English Channel.

British Everite and Asbestilite Works, Ltd. (29 Peter Street, Manchester) have constructed with their asbestos-cement products Stand 151, Row H, as a garage for two cars. "Everite" is manufactured as corrugated sheeting, slating, and as rainwater and domestic goods. Their "Asbestilite" is made into roofing tiles and flat sheets. Both materials are imperishable, impervious, non-conductive, fireproof, weatherproof; unaffected by atmospheric changes, acids, or chemical fumes; electrically non-conducting, perfect insulators against heat and cold; immune from condensation, peeling, cracking, and disintegrating. A very interesting feature on this stand is the rainwater gutters, brackets, pipes, and connections in asbestos cement.

Bryce, White & Co., Ltd., Deseronto Mills, 28 Wharf Road, N.) are now making a speciality of wood mantels, of which twenty designs are in stock, and of oak British-made doors. With regard to their Swedish doors, it may here be mentioned that, by arrangement with the Woodworkers' Union, these can be hung by Union men. On the Stand 190, Row J, various other doors, as well as gates, plywood, and London-made mouldings, may be inspected.

Cakebread, Robey & Co., Ltd., (Caroba Works, Wood Green, N.) make their customary good display in the threefold capacity of builders' merchants, manufacturers, and wholesale ironmongers. Stand 205, Row K, includes a wide selection of chimney pieces in wood or slate, interiors, register stoves, ranges, lavatory basins, bathroom fittings, and much else that goes to equip a house.

Walter Carson & Sons (Battersea, S.W., and Dublin) strike a very practical note by their stand No. 203, Row K. It is easy for a paint manufacturer to put forward examples of perfect work which are almost valueless to any but the most unsophisticated. On this stand everything is genuine, and will appeal alike to the decorator and the architect. Messrs. Carson & Sons have rendered into household words the names of such goods as "Muraline" washable water paint, "Muraprime" for porous walls, "Coverine" white undercoating, and "Japolite," the super-white Japan. One convincing example of this latter is to be seen on the stand in the shape of a door painted in 1912 with "Japolite" and which still retains its whiteness and perfect gloss. Another specimen shows "Vitrolite" as a substitute for white lead on outside and inside work. The firm produce special paints for a variety of special uses. One of their most versatile materials would seem to be the metallic paints which are here used on leather, wood and metal with equal success.

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Colthurst, Symons & Co., Ltd. (Bridgwater) can claim two unique distinctions in the medals they were awarded in 1857 and 1873 in Paris and Vienna respectively. Stand 185, Row J, shows an assortment of their products. Special emphasis is laid on the "Paragon" and "Acme" tiles. The firm also manufacture ordinary Roman, triple, and angular tiles, building-bricks, coign and moulded bricks, paving tiles, ridges and finials, field drain-pipes, chimney tops, &c.

The Concrete Utilities Bureau (35 Great St. Helens, E.C.) invite visitors who desire information on concrete matters to call at Stand 110, Row F. Here free literature may be obtained on the manifold uses of the material. Certain publications are on sale, including "Concrete Cottages, Small Garages and Farm Buildings," jointly by Albert Lakeman (the author of our series of articles on "Modern Methods in Building Construction") and H. J. Birnstingl, A.R.I.B.A.

The Crittall Manufacturing Co., Ltd., (Braintree) confront the visitor as he crosses the threshold of the Addison Road entrance with a truly magnificent bronze double door just finished for the New London County Hall. It towers nearly 14 ft. high, and is 9 ft. wide. Equally in its simple design and deft workmanship it is a thing to rejoice at. When glazed and permanently fixed the effect will be further enhanced. A more modest but very pleasing bronze door on this stand, No. 143 G, is one for the Shanghai office of the "North China Daily News." A novelty is the metal framed tropical shutter, with fixed or movable louvres in metal or wood. The exhibit includes various examples of the company's window products, such as the "Standard Metal" and the "Georgian" window—the latter has a frame whose dimensions are similar to an old-fashioned wooden sash, and the glass is fixed with putty. "Fenestra" panelling is one of the recent additions to the Crittall goods; it consists of slabs of glass, asbestos, or any kind of wood fixed within metal frames, and may be used as partitions as well as wall coverings.

The Educational Supply Association, Ltd. (40-44 Holborn Viaduct, E.C.) have been widely known during the past twenty-five years as manufacturers of science laboratory fittings for factories and schools and for their school furniture and fittings of every kind. But on Stand 58, Row D, they have confined themselves to demonstrating the "Esavian" movement for folding windows, doors, and partitions. In this principle there is a sliding upright or mullion between each pair of leaves. The following are five strong points about it: All leaves can be of equal size; movements with wheels of larger size than usual are fitted, giving greater ease in running; the simplicity of the movements is such that no part can get out of order; the leaves fold entirely on one side of the track, to whichever side is convenient; one or more pair of leaves can be folded independently, whilst the remaining portion is still extended. All these advantages are amply supported by a test of the partitions, doors, and windows erected on the stand. Their ease of working is really extraordinary.

Samuel Elliott & Sons (Reading) Ltd. have adopted a very effective Tudor design for their stand (No. 184, Row J) in English oak, which has been carried out in accordance with those traditions of craftsmanship dear to all who hate the soulless perfection of machine carving. There is even a bird's-nest in one of the spandrels to help create the right atmosphere. The interior is divided into three small compartments. There is, first, an Elizabethan room to show their "Interlocking Rail" panelling, which costs much less than framed-up work. Adjoining is a Georgian room whose walls are lined with a very handsome Spanish mahogany veneer. The third part of the stand includes their patent "Anti-Cyclone" revolving door, which is made both in two and four compartments. A novelty is a door with one side sheathed with aluminium, and the other with a flush-framed teak surface: this type is for operating theatres. Among the incidentals of the exhibit are a variety of mouldings, parquet flooring, and photographs of contracts.

The Falkirk Iron Co., Ltd. (London, Liverpool, Glasgow, and Edinburgh) have two works, one at Falkirk and the other at Excelsior Foundry, Sandiacre, near Nottingham. On their large stand, No. 16, Row B, there will be seen a considerable range of goods, including baths, lavatory stands, interiors, mantel grates, dog grates, electrical cooking and heating apparatus. The company make cooking apparatus in coal, steam, or electricity suitable for hotels, restaurants, institutions, schools, ships, &c. Their "Osborne" patent combination grate is of notably elegant appearance; the "Compax" combination interior is for smaller openings—21 in. against 38 in.—and has the oven above the fire.

William E. Farrer, Ltd. (Birmingham), the engineers and sanitary specialists, demonstrate on Stand 5, Row B (Gallery), two of their patent sewage distributors, one the "Facile" and the other the "Improved Automatic," the latter being primarily for small installations. "Facile" rotary distributors have been supplied to many of the big local authorities, including Bradford, Croydon, Halifax, Lincoln, Rotherham, Stoke-on-Trent, and West Bromwich. The exhibit includes penstocks and other fittings for outfall works, as well as Farrer's improved double trough lavatory in heavy glazed fireclay, which is operated by foot action.

"Fassio" Products, Ltd. (Argyle Place, Gray's Inn Road, W.C.) are new to the Building Exhibition but not to the trade: as long ago as the Franco-British Exhibition they were awarded a gold medal. Their present stand, No. 75, Row D, is a pavilion designed to show to excellent advantage their permanent decorative material and substitute for marble for interior work. There are detached columns in Sienna and Cippolino, as well as twenty varieties of wall slabs. The slabs are stocked 3 feet by 2 feet by ¼ inch, but any detail and dimension of columns, pilasters, linings, mouldings, &c., can be executed to order to reproduce any marble at about one-fifth the price. It can be readily cut with a fine-tooth saw, and may be either pierced for screws or bedded on the walls with cement. Superfine Parian cement is the principal constituent with a lower-grade Parian for the backing. The claim that "Fassio" is a thoroughly hard and sound material which improves with age is demonstrated by the fact that it has stood ten years exterior wear on a Whitechapel bank. The London buildings where "Fassio" work has been executed include the Piccadilly, Cecil, and Windsor Hotels, Whitehall Court, Hay's Wharf Offices, Dashwood House, and Olympia, not to mention many contracts in the provinces.

The "Hurry" Water Heater Co. (39 Broad Street, Birmingham) show on Stand 226, Row L, various types of their cylinder and furnace. The efficiency and economy of these is suggested by the number of important housing schemes to which they have been supplied and which include Bournville, Aldridge, Brierley Hill, Croydon, Bristol, Slough, Mitcham, Loughborough, Stourbridge, Nottingham, and Halesowen. There are types for use with gas, coal, or oil fuel or petrol-air gas.

The Interloc Constructions Co. (Harrow) has been formed to develop the cellular brick system patented by Mr. George E. Clare, M.S.A., and used on a large number of housing schemes, including Woolwich, Leicester, Croydon, Rotherham, Hindhead, and Wembley. The common blocks supplied are 12 in. long and 9 in. high; 6 in. thick for outer and party walls, 4½ in. for outbuildings and main weight-carrying partitions, and 3 in. thick for ordinary partitions. Blocks are supplied with smooth faces or scored for plaster key. It is claimed that the "Interloc" dovetail joints are the strongest in existence, and that the economy in freightage, foundations, labour, mortar, plastering, chimneys, scaffolding, time and expenses effects a total saving of about 10 to 15 per cent. On Stand 45, Row C, the company have a number of models of houses exemplifying "Interloc" construction.

J. A. King & Co. (181 Queen Victoria Street, E.C.) provide a comprehensive exhibit at Stand 105, Row F, of their "King" specialities, which have been familiar to architects and builders for many years. The company supply plaster slabs and concrete blocks for partitions, external walls, ceilings, roofs, pugging, &c. A small dome carried out in their "Cristol-Glass" is a very distinctive feature on the stand. For pavement, floor, roof and stallboard lights they show "Ferro-Glass," which is constructed with glass prisms and thin ferro-concrete beams so as to allow of almost unimpeded light. One of its outstanding advantages is the fact that there is no exposed ironwork to rust; the whole of the underside is of glass, so can be easily cleaned, and dispenses with the painting required with the ordinary types. "Ferro-Glass" has been introduced extensively at the New London County Hall. Then there is King's reinforced concrete glazing bar. The company are also exhibiting their fire-resisting floor constructed with steel joists at about 3 feet centres having special clay tiles fitted between the joists which are thus protected on the underside.

John Knowles & Co. (London), Ltd. (38 King's Road, St. Pancras, N.W.) show in the Gallery on Stand 25, Row B, stoneware pipes of all kinds, sanitary earthenware, lavatories, sinks and pedestal closets. Pride of place is given to their "Free Flow" stoneware pipes, which are

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self-inverting and require no bitumen rings either in the socket or on the spigot. Messrs. Knowles were established more than seventy years ago, and have twenty-seven branches in London.

Thomas Lawrence & Sons, of Bracknell, Berks, are patentees and sole manufacturers of the famous "T.L.B." facing and rubber bricks. As far back as 1886 the firm were awarded the only gold medal for bricks at the Architectural and Building Trades Exhibition held in the Agricultural Hall. This year Messrs. Lawrence do not occupy a stand of their own, but their goods are displayed by two other exhibitors. On Stand 188, Row J, there is a specimen window arch composed of "T.L.B." rubbers with key in "T.L.B." semi-Roman tiles, as well as other samples of rubbers in various shades of red. On Stand 143, Row G, is a window arch formed of their "T.L.B." hand-made sand-faced special arch bricks.

Leckhampton Quarries Co., Ltd., near Cheltenham, Glos., have just been granted, after searching inquiries by the Government, the principal and interest of £50,000. This and other capital will be used for further important developments, including a railway siding and the most up-to-date plant. As was only to be expected from the Cotswold district, the stone from these quarries is a delightful one to look at and to use. Stand 36, Row C, shows it in the form of a simple pavilion covered with Eyford natural-stone roofing slates. It is remarkably fine in grain, and any intricate detail can be interpreted: when left from the axe, the broadest and pleasantest effects are obtained. In price it comes between Bath and Portland. Work has recently been done for Sir Aston Webb, P.R.A., Sir Edwin L. Lutyens, Mr. W. D. Caröe, and others. The piece-de-resistance of the exhibit, however, is the Leckhampton hand-picked lump lime which when completely slaked is over three and a-half times its original bulk and snowy white. One of the purest limes produced, it contains 95.38 per cent. lime, and is equally suitable for both plastering and mortar-making.

The Limmer & Trinidad Lake Asphalt Co., Ltd. (34 Victoria Street, Westminster, S.W.) commenced operations just over half a century ago. To the general public it is chiefly known from the fact of having constructed approximately 350 miles of asphalt roadways in this country. To architects, their Montrotier Seyssel and Trinidad mastic asphalts are familiar in all classes of building work, horizontal and vertical dampcourses, flooring, &c. On their stand, Bay 16A in the Gallery, are a number of aerial photographs showing the centres of cities like London, Liverpool and Cardiff: arrows indicate the buildings protected by the company's roofing. For example, a bird's-eye view of the Whitehall area shows important work like the National Gallery, War Office, Horse Guards, Middlesex Guildhall, Houses of Parliament, Institution of Civil Engineers, Scotland Yard Recruiting Office, and the Admiralty Arch. On the stand are samples of the firm's numerous specialities.

The London Ply-Wood Manufacturing Co., Ltd. (384 Old Street, E.C.) hold a stock of some five million feet inclusive of joinery timbers and hardwoods. But their speciality is plywood, which may be obtained in every thickness from .05 in. up to 2 in., and in birch, satin walnut, alder, oak, mahogany, walnut, &c. On Stand 126, Row G, there are many excellent panels of both the more expensive and the cheaper varieties—those in mahogany and walnut have come in for much admiration. Panels for doors and dressers cut to size from stock are also exhibited.

Low Laithes Colliery Co. (Wakefield) have on Stand 165, Row H. by arrangement with Messrs. Sutcliffe, Speakman & Co., Ltd., samples of their standardised machine-made concrete kerbs and flags. The kerbs are produced in two sizes, viz., 10 inches by 6 inches and 12 inches by 8 inches. The paving flags are 3 feet by 2 feet by 2½ inches.

F. McNeill & Co., Ltd. (Spencer House, 4 South Place, E.C.) were the original patentees of asphaltic roofing felt. On Stand 178, Row J, one may inspect a large variety of their "Lion Brand" roofing and roof-lining felts as fixed on innumerable buildings both at home and abroad. Instructive models and sections illustrate the most economical and efficient method of use. A product of a different kind is "Slagbestos," the company's patent slagwool, whose remarkable fireproof and soundproof qualities are here effectively demonstrated with the help of a gas burner and loud electric bell respectively. Messrs. McNeill are manufacturers of dampcourses to the Ministry of Health's specifications; they also have a pure bitumen sheeting for lining reservoirs, &c.—a class of work which can be carried out by their own men.

Moler Fireproof Brick and Partition Co., Ltd., (Vickers House, Broadway, Westminster) use their T-shaped hollow blocks for their stand—No. 38 C. "Moler" bricks, it will be remembered, are made at Colchester from diatomaceous earth imported from an island off the coast of Denmark. It is claimed that, though half the weight of ordinary bricks, they are of great strength, as well as fire, sound, and vermin proof. A "Moler" brick floating in a glass tank is proof of lightness. Nails and screws can get a perfectly firm hold. The material is made up into partition blocks, external wall blocks, floor blocks for reinforced concrete, and heat insulating bricks of all sorts.

Moorwoods, Ltd. (14 Chicheley Street, Belvedere Road, S.E., and Sheffield) are welcome newcomers to the Building Exhibition. On Stand 14, Row B, there is a small selection of their manufactures, comprising interiors, register grates, dog grates of exclusive design, kitchen ranges, &c. One novelty is the Adams interior carried out in rustless iron; anyone who has experienced the advantages of stainless cutlery will be interested in this latest development in labour-saving equipment. The firm's neat combination range is designed on the Yorkshire-oven principle—i.e., the bottom is heated first. There are some charming Jacobean and Georgian fireplace suites. On the other side of the stand is a range of goods manufactured for housing schemes, such as mantel grates, portable range and portable boiler. Moorwoods, Ltd., we may add in conclusion, occupy an exceptionally strong position in the matter of all kinds of cooking apparatus for service on land and afloat, heated by gas, coal, oil fuel, or steam.

B. Morton & Sons (Manchester) are new to the Olympia Exhibitions, but they are certainly not new to the trade. In less than ten years they have executed in their patent reinforced brickwork contracts in Lancashire to the value of half a million sterling. A "Morton" column consists of special slotted or grooved Accrington bricks built round vertical steel rods and with steel plates or wire hoops, spaced to suit the nature of loading. A "Morton" brick wall is divided into panels by steel vertical rods arranged in pairs and tied at the brick joints. A "Morton" floor slab has its upper part of concrete and its lower of reinforced brickwork. This system is intended for buildings like warehouses, factories, mills, chimneys, storage sheds, and other conditions where considerable strength is called for. It is claimed to possess all the main advantages of reinforced concrete without the objectionable characteristics.

Partridge's Models, Ltd. (4 and 5 Mason's Avenue, E.C.) are by no means solely represented by their modest stand in the annexe, for their work is to be viewed on many other stands dotted over the Exhibition. As indicating the value of models we may mention that at the recent Ideal Homes Exhibition two houses at Welwyn were sold outright to visitors to Olympia on the strength of the models. On Stand 32, Row C, there is a model of an extensive Huddersfield factory, as well as of various houses.

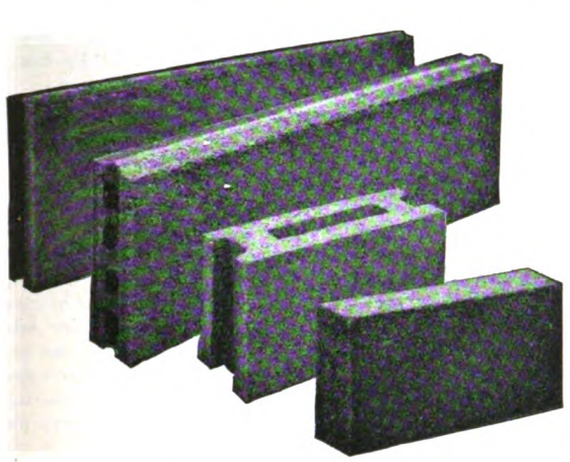
The Patent Rapid Scaffold Tie Co., Ltd. (43 Lansdowne Road, Stockwell, S.W.) occupy the same position as last year, and again enclose their stand (No. 69, Row D) with scaffolding on which Scaffixer ties replace cords and other lashings. These Scaffixer ties have been employed exclusively on so many important contracts both in London and the provinces (to mention merely the reconstruction of Buckingham Palace, the New London County Hall, Savoy Hotel Extension, and the new Granaries, Salford Docks) that their excellence may be said to be known all over the country. The firm possess a big stock of builders' plant and machinery for sale or hire at reduced cost.

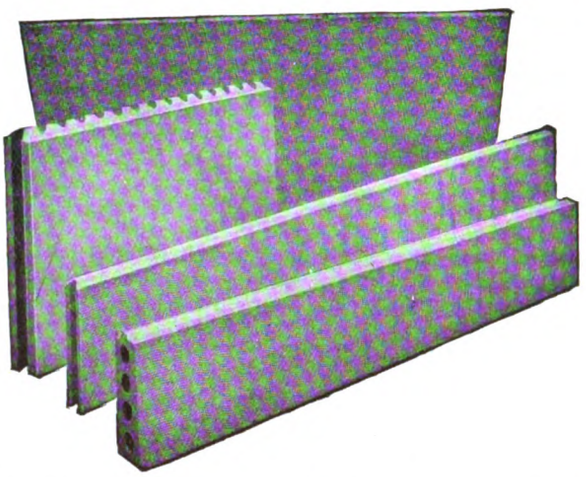
The Patent Tip-up Bath Co. (Birmingham) exhibit in Row B, Stand 27, various sizes of their unbreakable baths, which are manufactured in seven varieties, between 4 ft. and 5 ft. 6 in. long, of lead-coated steel sheets, and enamel painted. One type is fitted with a "Hurry" water heater over the waste end, this whole packing into a narrow cabinet when out of use. Another is heated by a "Hurry" furnace for wood, coal, or gas. Darby's "Champion" baths have been supplied to housing schemes in over a hundred towns in England and Wales.

The system of the Patent Tubular Scaffolding Co., Ltd. (200 Upper Kennington Lane, Vauxhall, S.E.) is now so well established as scarcely to need any description to anyone connected with the trade. Very briefly, we may say the scaffolding consists of steel tubes of great strength, connected by the "Scaffoltube" couplers. This coupler is extremely simple in construction. It is placed in position quickly and without effort, and a turn of the set screw at

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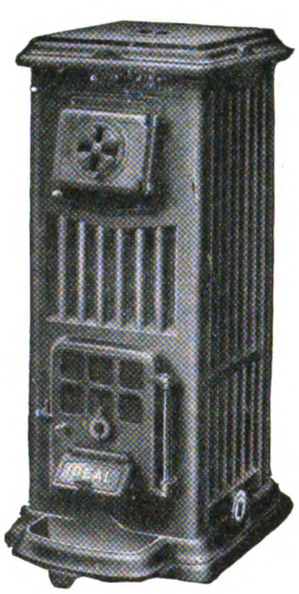
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once joins the tubes with remarkable rigidity. A scaffold of any height can be erected with tubes, the longest of which need only be six feet. One very striking advantage in its use in connection with the interior or exterior of buildings in occupation is that it involves the minimum of interference with space and with light. Its extraordinary adaptability is another point. Two recent instances were the conversion of the tubular scaffold for the Euston War Memorial into a grand stand for the unveiling ceremony, and their erection as stand framing outside Westminster Abbey for Princess Mary's wedding. On Stand 69 D there are some very interesting photographs of contracts where this form of scaffolding has been used. For cranes, gantries, &c., the company have a patent tubular tower.

The Patent Victoria Stone Co., Ltd. (11-13 Hamilton House, Bishopsgate, E.C.) make an imposing show in the Gallery at Stands 41 and 42, Row B, with their fine material, which appeals alike to the architect and the borough surveyor. The former is well catered for by the introduction of massive tall columns, balustrading, windows, vases and pedestals, which are beautifully carved and moulded and equal in appearance to natural stone. The stand is paved with Victoria Stone slabs, some of which are finished with Victorite to render them non-slipping and non-wearing. The company (which was established in 1868) are, of course, specialists in granolithic paving for offices, factories, stations, asylums, &c.

C. A. Peters, Ltd. (Derby, London, and Liverpool) are probably identified in the minds of the building trade with "Carbolineum," for they have made that famous wood preservative for forty years. They still make it, but it is now sold under the name of "Peterlineum." Call it by any other name and it will be just as good. The preparation is applied hot with a brush or by immersion, one gallon covering from 30 to 50 square yards. Stand 67, Row D, shows the colour as a pleasing nut-brown. One very convincing testimonial as to its merit is the fact that it was selected to treat the giant pine flagstaff, 215 feet long, at Kew Gardens.

Thomas Potterton (Cavendish Works, Balham, S.W.) has on Stand 63, Row D, a selection of the standardised types of "Victor" gas boilers and domestic hot-water supply apparatus. A special feature of the "Victor" system is an arrangement of pipe connections to the cylinder by which hot water is supplied in small quantities soon after lighting and, if desired, only a part of the cylinder need be heated. The new "Victor Combination" is a gas-boiler fitted in conjunction with a specially designed coke heater. Other specialities include independent coke or anthracite boilers, thermostats, and automatic control devices.

"Quicksey" Cabinet Manufacturing Co. (Cromwell House, High Holborn, W.C.) very shrewdly argue that their all-British labour-saving cabinet concerns builders no less than owners or tenants of houses, inasmuch as its presence as a fixture may make all the difference between a house sold and a house for sale. On a certain building estate about to be developed in the west country over three hundred of them will most probably be introduced as a fitting. It is certainly easy to appreciate their attractiveness to anyone in negotiation for a house or flat where both labour and space have to be severely economised. The "Quicksey" is both a handsome and useful feature which could not fail to delight the housewife's heart with all its practical contrivances. A "Quicksey" nursery cabinet is a clever adaptation of the other. On Stand 47, Row C, a few additional patented specialities may also be seen.

Ransome Machinery Co. (1920) Ltd. (14-16 Grosvenor Gardens, S.W.) are represented in the Main Hall on Stand 195, Row K, and in the Gallery at Bay 26. Here may be examined various types of "Ransome" concrete mixers, concrete hoisting and placing equipment, tip carts, tar macadam plant, steel piling and piling plant. Special attention should be paid to the "Aero" concrete mixer, which embodies a new principle, and can produce splendid concrete from even poor aggregate. Cement from a blower or spraying fan is deposited on every particle of stone and sand as it is thrown backward and forward in the drum. By appointment, Ransomes will show one of the "Aero" mixers in use on a contract for the erection of a new bridge at Chiswick.

Stand No. 43, Row C, occupied by Messrs. Rippers Ltd., joinery manufacturers (Castle Hedingham, Essex), is well worthy of a visit. In our issue of January 6 last we published some particulars of this company's works. The present exhibit contains examples of woodwork for housing schemes—useful household fitments such as kitchen dressers, revolving cupboards, step-chairs, &c. There are also doors of oak and other woods which have passed through the sand-blasting operation. Greywood is a distinct feature, and where it is desired to get away from teak, oak, or mahogany this wood affords the architect a pleasing opportunity, being beautifully figured and restful to the eye. This firm are also exhibiting very fine examples of high-class polished wood doors, and a new patent hospital door, also manufactured in various woods, with absolutely plain surfaces to avoid harbouring dust or disease germs. Messrs. Rippers' shop-fitting department is represented by designs of shop fronts and interiors for various trades.

Roberts, Adlard & Co. (47 Queen Elizabeth Street, Bermondsey, S.E.) bring together on Stand 85, Row E, some beautiful things in roofing. The firm have been established well over a century, and have carried out work as paving, roofing, and slate masonry contractors in the Colonies, France, and the United States. An excellent idea may be obtained on this stand of the wide scope in natural roof coverings nowadays offered to an architect. There are the famous Cornish green slates with delightful shades of russet and fawn colour; Cumberland green slates (as now being supplied for Westminster Hall); Herefordshire stone roofing in random sizes quarried in its natural bed, hand-made antique tiling and hand-made patent pantiles specially designed to overcome the inherent defects of ordinary pantiles. An excellent display.

Fredk. Sage & Co., Ltd. (58-62 Gray's Inn Road, W.C.) specialise in so many things that go to equip a shop, they must be rather puzzled as to what items to select for exhibition. On stand 19, Row B, there will be found a display of showcases, unit fittings, and display fittings for various trades, electric fittings, drawn-metal mouldings, wood and metal revolving shutters, and a metal-cased shop-front door. Prominent on the stand is an Osram G.E.C. gas-filled daylight lamp for colour matching, in which a bulb of a special blue glass is used to absorb the excess of red and yellow rays in the ordinary Osram.

Smith & Wellstood, Ltd. (11 Ludgate Circus, E.C., head office and works, Bonnybridge, Scotland) give the most conspicuous position on their big stand (No. 219, Row L) to an "Improved Ideal" anthracite burning range which is of the portable type and requires no recess. Most visitors must be struck by the smallness of the fire-chamber and the largeness of the hot-plate, with its six boiling openings. Other goods are the "Wellstood" ranges and grates, "Esse" stoves and "Hydresse" domestic water-heaters. These latter are a recent addition to the firm's goods. The No. 1 "Hydresse" boiler has been introduced to ensure a steady, copious supply of hot water at a low cost, combining the advantages of a visible fire (it will keep alight for twenty hours, and is under complete control) and a refuse destructor, with accommodation for a small amount of cooking. It works best with anthracite, but it will also burn coke, coal, wood or house refuse.

G. R. Speaker & Co. ("Eternit" House, Stevenage Road, S.W.), on Stand 142, Row G, combine "Eternit" asbestos cement tiles and sheets with their "Trellit" light steel construction and patent roof trusses. The two latter have been devised, we imagine, with a special view to use abroad, where difficulties of transport and absence of skilled labour must make their advantages particularly apparent. By the "Trellit" system complete wall and ceiling sections of the frame fold up trellis fashion for freightage. On the job these are opened, covered with Eternit sheets, and the bungalow is ready for occupation in a few days. The patent roof trusses are made on a special principle of uniting three welded sections, in which these trusses are sent out for easy transport.

Stancliffe Estates Co., Ltd., make a good show on Stand 78, Row E, of stone from their two quarries at Darley Dale, near Matlock. Blocks can be obtained from either Stancliffe or Hall Dale of any practical size and in unlimited quantities, and is supplied in the rough, sawn, planed, moulded, or mason dressed. The exhibit includes crosses, balusters, wallstone, paving, kerbs and crushed stone. In one corner there is a big grindstone for wood pulp. A chemical analysis of Stancliffe stone proves it to consist of 96½ per cent. of silica.

Messrs. Stothert & Pitt, Ltd. (Orchard Street, Westminster, S.W.) are represented by plant from their mixer department on Stand 42 C. The appliances include the latest type, No. 7, combined stone drying and mixing plant for dealing with tar macadam and bituminous mixtures on a job; two "Victoria" mixers (Nos. 1 and 7), with mixed capacity of 10 and 7 cubic feet); a "Victoria H.M."

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Architects.

From an original Etching by
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concrete mixer (mixed capacity 3 cubic feet); standard "Dri-Crete" concrete block machine, and a standard slab machine.

Swift Building Co., Ltd. (18 Iddesleigh House, Caxton Street, S.W.) have on Stand 26, Row B, a model to show the construction of the "Bretridge" portable roof. The roof consists of laminated timber ribs made in two, three, of four sections, according to the width of span, bolted and braced with steel trussing. The ribs are spaced at 5-ft. centres. Wrot timber interlocking slats are inserted in the grooves at the top of each rib from the springing almost to the crown, leaving a space of about 2 ft. 6 in., where a spring frame device holds the slats continuously in compression. Over the spring frames a ventilator or a skylight is placed. The whole is covered with a bitumenised fabric or with sheet zinc. The roofing is supplied in standardised sections, and can be assembled at the site with ease, the only tool required for erection being a spanner. It can be attached to existing walls and adapted to all sorts of conditions.

Tuke & Bell, Ltd. (27 Lincoln's Inn Fields, W.C. 2) as specialists in sewage disposal, are under the disadvantage of being unable to show a full-size complete installation at work. They have, however, on Stand 61, Row D, certain important parts for both large and small installations. The architect, who is usually concerned with country house, hospital, or similar independent sewage purification, will be specially interested in the model of a country house with its complete sewage installation, as also in the base, central column and distributing tank, with alternating tippers and lever and pawl gear, for their "Ideal" revolving distributors, made for all diameters from 10 feet to 50 feet. A great point about these distributors is that there are no perforations which require constant attention.

Turner Brothers Asbestos Co., Ltd. (Rochdale, London and Glasgow) are the pioneers of the great asbestos industry in this country- of which the building trade is merely a section. Though newcomers to the Building Exhibition, the firm for some years have been making at Trafford Park, Manchester, asbestos-cement tiles, roofing slates and building sheets. Their pavilion, No. 163, Row H, illustrates the practical use of these materials. When considering the Trafford tile it should be noted that this is not an imitation of corrugated steel-sheet roofing, but that it has been designed on scientific principles to obtain the maximum flexion strength from the asbestos-cement, with efficiency, a maximum covering capacity, and simplicity of fixing. Trafford Tiles are manufactured to one standard size 4 feet long by 3 feet 8 inches wide (nett, weather surface when fixed, 3 feet 6 inches by 3 feet 4 inches per tile), for fixing to purlins at 3 feet 6 inches centres. The great flexion strength, which allows the purlins to be spaced at 3 feet 6 inch centres, effects a considerable saving. To ensure close fitting laps, the corrugations are tapered, and two corners of the tiles are mitred, so that, where four tiles meet, three thicknesses occur. The rear of the stand demonstrates "Aegis" asbestos cement building sheets and roofing slates, both of which harden under exposure.

The Walker-Weston Co., Ltd. (7 Wormwood Street, E.C.) exhibit in the Gallery, Bay 7, their patent interlocked double-layer reinforcement for roads and foundations. This Walker-Weston system was evolved five years ago by Mr. J. H. Walker, A.M.Inst.C.E., for use on the Port of London's developments at Royal Albert and Victoria Docks. Since that time it has been extensively employed for all classes of reinforced concrete work throughout the country, including quay and platform walls, roads, floors, culverts. It can be adapted to any form of construction. The reinforcement consists of a double-layer interlocked rigid framework in which diagonal wires connecting the two layers serve as shear members, whilst the bars in the top and bottom layers provide the necessary tensile resistance for stresses due to contraflexure and flexure. On the stand is a model section of the North Circular Road, of which two miles are in process of construction for the Middlesex County Council (in conjunction with the Ministry of Transport), on the Walker-Weston system. The centre portion of the eight-inch concrete carriage-way has been cut out to show the 5-inch depth of reinforcement. Another model shows its applicability to concrete rafts from 5 feet to 20 feet span. A large number of photographs are displayed of various contracts.

The Waterex Co., Ltd. (104 High Holborn, W.C.) are introducing into this country from America, where it has had ten years' success, Waterex, a colourless permanent waterproofing and preservative for use on brick, stone (both natural and artificial), concrete and plastered surfaces, both above and below ground. Demonstrations on prepared and unprepared surfaces demonstrate at Bay 15, Gallery, the effectiveness of the liquid. When used for exterior work above ground, Waterex should be sprayed or brushed on in two or more applications. When used in work below ground, against water pressure, Waterex must be mixed with cement and sand (1¼ gallons to 100 lb. cement), and applied to the inside of walls, as well as to the top of floor slabs as a cement finish or rendering. Waterex floor preservative for wood and concrete and terrazzo is applied by the company's own men, or authorised representatives, at a definite cost per square foot. It is not sold by the gallon. Standard models of hand and power "Waterex" double-acting pumps are shown in operation.

Webb Bros., Ltd. (Battledown Works, Cheltenham) are to be found in the annexe (Stand 211, Row K), where specimens may be inspected of their excellent Battledown hand-made, sand-faced roof tiles, which are obtainable in red, brindles and stone colours. This firm links up with Alfred the Great by reason of the fact that that wise monarch started tile-making at Cheltenham in 886. Messrs. Webb also manufacture bonnet hips, half-round ridges, gables, eaves, hips and valleys, bricks, cable covers, and land drain-pipes.

Wilfley Co., Ltd. (Salisbury House, London Wall, E.C.) have selected a very effective design for the Marbolith jointless flooring laid on their stand, No. 145, in Row H. "Marbolith" is a composition laid usually ½-inch thick in a plastic state on any kind of solid indoor foundation. It sets and is ready for use in from twenty-four to forty-eight hours. A cove skirting is recommended for hygienic reasons. The standard shades are red, brown, buff and grey. The fire-resisting properties of this material were exemplified last year, when "Marbolith" withstood the flames (though the wood boards on which it was laid were completely charred), and confined the damage to the basement. The firm are prepared to give a three years' guarantee on any work. On the same stand are a range of samples of Alundum safety tiles, for which Messrs. Charles Churchill & Co., Ltd. (9-15 Leonards Street, E.C.), are the agents for the British Isles: Messrs. Wilfley & Co. act as sub-agents. This tile is one of the novelties in the Exhibition, and has come with a remarkable record from America as a non-wearing, slip-proof surface suitable for the most trying conditions of use. The samples indicate that its very practical qualities need not be at the expense of appearance for some of the patterns are extremely effective.

Williams & Williams, Ltd. (Sardinia House, Kingsway, W.C., and Reliance Works, Chester) show metal windows of many types. All "Reliance" goods are constructed with the utmost possible care, whether they be the cheaper standard windows for housing schemes, bronze grilles for banks, or fittings like casement stays. The firm announce they are prepared to have ready complete working drawings and estimates for doors or windows for any special purpose in two days after the receipt of the inquiry at Stand 138, Row G. Messrs. Williams & Williams have had no less than sixty years' experience of steel window making, and emphasise the dependability of their service.

(To be concluded.)

Mr. George Eley Halliday, F.S.A., F.R.I.B.A., the well-known Cardiff architect, died at Cardiff on April 5, aged sixty-four years. Mr. Halliday was an authority on archæology, and his works on church plate and other treatises have been in great demand by those interested. He came to Cardiff after serving his pupilage in London, and was for some time an assistant to Mr. John Pritchard, architect for the restoration of Llandaff Cathedral, but at an early age commenced practice, and as an architect was most successful, carrying out his works with rare skill and devotion. Mr. Halliday was President of the South Wales Institute of Architects during 1911 to 1913. Amongst the numerous works executed by him may be mentioned St. Teilo's Church, Cardiff, All Saints' Church, Porthcawl, Christ Church, Radyr, Caerphilly Church Tower, St. Mary's Church, Barry Dock, Llantwit Major Church restoration, Howells' Schools, Llandaff, the Llewellyn Almshouses, Neath, alterations to the Dorothy and Dutch Cafés, Cardiff, Messrs. Cory Brothers' offices, Docks; The Retreat, Llandaff, and many other churches and residences, including numerous restoration work to churches throughout South Wales. The practice will be continued for the present by Mr. Chris J. Ward, F.S.I., L.R.I.B.A., at 9 Quay Street, Cardiff, who has been carrying on Mr. Halliday's practice during his illness.

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General.

During 1921, 8,537 buildings were erected within the metropolis of Sydney, the cost of construction being £9,655,000.

The plans have been approved for the erection of a cinema at Stainforth, near Doncaster. The architects are Messrs. Hopkinson & Co., Bridge Street, Worksop.

The plans have been approved for the erection of premises in High Street, Doncaster. The architect is c/o Messrs. Parkinson, High Street, Doncaster.

Stanley Urban District Council have accepted the tender of Messrs. Teamby, of Sheffield, for £22,254, for the erection of forty-six houses at South Stanley.

Mr. Andrew Donnellan, of Brook Road, Meersbrook, Sheffield, retired builder, who died on June 4, left estate of the value of £47,778, of which £41,865 is net personalty.

The Manchester Housing Committee has received from the Ministry of Health provisional sanction to build 118 additional houses on the Clayton, Newton Heath, Cattrick Hall (Didsbury), and Highfield (Levenshulme) estates.

The Edinburgh Education Authority have approved a recommendation for the erection of a technical and commercial school on the Bellevue site, and also the erection of a new school at Leith Links.

Nairobi municipality have issued regulations forbidding the construction of buildings with inflammable roofs. Those at present in existence must be replaced with incombustible materials before the end of this year.

Walsall Town Council last week decided to apply to the Minister of Health for approval to erect in various parts of the borough 100 additional houses in blocks of six or eight, at an estimated approximate cost of £400 each house.

The Board of Architectural Education call attention to the fact that drawings bearing the name of the architect in whose office a student works will not be accepted by the Board of Architectural Education as testimonies of study for the final examination of the Royal Institute.

Mr. Geo. Bennett Mitchell, M.B.E., D.L., President of the Aberdeen Chapter of the Institute of Scottish Architects, and vice-president of the Institute, has been appointed to supervise the work of erecting the West Hartlepool War Memorial, to the design of the late Mr. Coombes. Mr. Mitchell has undertaken to do the work to assist the widow of the late successful competitor.

Mr. P. A. Hinchliffe, F.R.I.B.A., of 14 Regent Street, Barnsley, and 19 St. James's Street, Sheffield, is the architect for cinemas which it is proposed to erect in Princess Street, Barnsley, Scotland Street, Sheffield, and Dolcliffe Road, Mexborough. The plans have been approved in each case.

At the last meeting of the Clowne Rural Council it was reported that, as a result of the interview which a deputation had with Sir Charles Ruthen, the Ministry of Health had sanctioned the erection of twenty-four additional houses, eight each at Clowne, Barlborough, and Whitwell.

Mr. Archibald Leach is the architect for a large reinforced concrete stand about to be erected at the Aston Villa Football Club's ground at Villa Park. The plans were approved in 1914, and a beginning was made with the foundations, but work was suspended owing to difficulties of cost and material. This erection was resumed on Monday last.

The Housing Committee of the Nuneaton Town Council have accepted the tender of Messrs. E. Morley & Son, Derby, for the erection of 24 houses in Tomkinson Road, Stockingford, at £9,246, or £385 per house. Similar houses to those tendered for, it is stated, cost nearly £800 about two years ago, and the same type when first tendered for at Attleborough worked out at £506 each.

The Newcastle Corporation Housing Committee have recently decided to recommend the City Council to accept the tender of the Building Guild for the erection of 232 houses on the Pendower Estate. The tender sent in by the Guild was the lowest received, the difference between the highest and lowest being nearly £70,000. It was reported that 406 houses on the Walker Estate were now occupied, and that there are about an additional 260 in course of erection.

Salford Town Council have decided to proceed, subject to approval by the Government Commissioners, with an electricity scheme for the borough, which involves the expenditure of £800,000 on the erection of a super-station at Agecroft. They also decided to allow their present electrical engineer (Mr. J. A. Robertson) to resign, but to pay him £500 for a year as consultant, and also to pay him £14,000 to complete the scheme. Out of this Mr. Robertson has to provide his own staff, with the exception of one draughtsman, it being estimated that he will receive £5,000.

At the annual general meeting of the Edinburgh Architectural Association the following office-bearers were appointed for the ensuing session: Mr. T. Aikman Swan, A.R.I.B.A., President; Mr. T. P. Marwick, A.R.I.B.A., F.R.I.B.A.; Council, Mr. A. B. Boterill, F.R.I.B.A., Mr. Mr. F. C. Mears, Vice-Presidents; Mr. Stewart Kaye, A.R.I.B.A., Hon. Secretary; Mr. James A. Arnott, F.R.I.B.A., Hon. Librarian; and Mr. W. G. Walker, C.A., Hon. Treasurer.

Despite the industrial situation, two new colliery villages are coming into being near Worksop, one, indeed, in the urban district itself. This is "Rhodesia," near Woodend, which is the enterprise of the Shireoaks Colliery Company, and is so called after one of the principal directors. The other is "Bircotes," and is being laid out on elaborate lines at Harworth, in the Blyth and Cuckney rural district, by Messrs. Barber, Walker & Co., to whom the mineral rights acquired by Herr Stinnes were sold. The plans provide for 1,500 houses, a church, club and institute, and recreation ground.

The contracts for the laying of the first section of the fourth pipe line from Thirlmere in the Lake District to Manchester (states the "Industrial Daily News") have been placed. The cost to the Manchester Corporation will be well over £1,000,000. The work consists of the laying and jointing of a line of 54-inch welded steel pipes, for a distance of twenty-eight miles. A commencement will be made at Ambleside, and the line will pass through Kendal, Kirkby Lonsdale, Lancaster, the River Ribble, and Horwich. The laying has been entrusted to Sir William Arrol & Co., Ld., of Glasgow, and Mr. Frank Bayes, of Liverpool, and the steel pipes will be supplied by the British Mannesmann Tube Co., of Landore.

The Middlesbrough Memorial Committee have accepted the tender of Messrs. H. Coxhead & Co., Ltd., of Albert Road, for the erection of a cenotaph and ornamental gates at a cost of £12,000. One of the local Councillors objected to the suggestion that the dates 1914-1919 should appear on the cenotaph in Roman numerals, remarking, "This memorial is not for us. It is for plain men like Tommy Jones or Patrick Murphy. Let us have plain English figures." The alteration was agreed to.

The Swansea Higher Education Sub-Committee propose that in future the work of the local Technical College will be in the direction of more highly technical or vocational courses of instruction for young persons going into industries from the central and secondary schools rather than degree courses, which may be left to the University College. The first step recommended in this direction is the establishment of a complete building trades department.

Messrs. P. and W. Anderson, Limited, of London and Glasgow, have secured the contract for the extension to be erected at Olympia. The extensions will consist of a new rectangular hall, 265 feet by 175 feet, between the existing building and Hammersmith Road, and connected to the main hall by a passage 95 feet broad and 97 feet long. The main entrance to Olympia will be via the new hall from the Hammersmith Road front. Round the New Hall and passage will run a gallery 30 feet wide, connecting with the existing gallery in Olympia, and the effect will be to increase the total floor space from 200,000 to 300,000 square feet. The expenditure is estimated at approximately £150,000.

Bristol Society of Architects held their annual meeting on the 12th inst. at the Royal West of England Academy, the chair being occupied by the President (Mr. G. C. Lawrence). The annual reports of the Society were read and adopted, and the voting for the election of officers and council for the new session resulted as follows: President, Mr. G. C. Lawrence, A.R.I.B.A.; Vice-Presidents, Mr. Graham C. Awdry, F.R.I.B.A., and Mr. S. S. Reay, F.R.I.B.A.; Council, Mr. A. B. Botterill, A.R.I.B.A., Mr. Mowbray A. Green, F.R.I.B.A., Mr. G. H. Oatley, F.R.I.B.A., Mr. B. Wakefield, F.R.I.B.A., Mr. T. H. Weston, F.R.I.B.A., and Mr. J. B. Wills, F.R.I.B.A.; Associate Members of the Council, Mr. T. H. Skinner, A.R.I.B.A., and Mr. E. G. Rodway, A.R.I.B.A.; Hon. Treasurer, Mr. J. B. Wills, F.R.I.B.A.; Hon. Secretary, Mr. W. J. Stenner, A.R.I.B.A. The meeting concluded with a hearty vote of thanks to the President and officers of the Society for their services during the past year.

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VOL. CVII.—2784. THE ARCHITECT APRIL 28, 1922

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"Form in Civilisation."*

THE above title is given to a series of essays by Professor Lethaby on architecture in its relation to modern life, but we doubt if any one of them really deals with what is the fundamental difficulty underlying the problem. This we should define as being the essential fact: that in no time so much as the age in which we live has corporate power been so widespread, or covered so large a field of function; in no time in the history of the world has the individual been freer to cut himself adrift from the activities of the community in which he lives. In the feudal ages man was either governed or governed others, for lord and vassal between them had to fill in the gap which lies between the authority exercised by the king or overlord and the chaos which would have resulted if that gap was left unfilled. Everyone was sharply reminded in every action of their lives of the foundation on which social order rested. To-day men may live long lives without being personally reminded of their duties to the State, and if they pay the tax-collectors' demands they may almost forget the existence of the State, and may confine their attention to pleasing or engrossing occupations.

A journey of a hundred miles anywhere in England was an adventure fraught with greater peril than is the circumnavigation of the globe to-day. Those who had not sufficient physical strength or courage were forced to dwell in safe places or to seek the protection of the strong, rendering them some return for what they found necessary. A bad season of shortage meant suffering all round, for there was no accumulated store to make good the deficiency. All these factors, and countless others which occur readily to our thoughts, produced a far closer relationship of man to man than occurs in our life to-day. It is true that we have a network of communal powers—parliamentary, municipal, and many others; a network so wide and extensive that everyone of us could, if we would, be busy from morning to night over so-called public duties. But in reality the wider spread the powers and rights of the individual become the less does the average man make use of them.

The majority of men are indifferent to their surroundings, other than those they are brought into closest contact with. The town in which they work is generally a matter of indifference to them, provided it gives them certain necessary facilities—the house in which they live does, indeed, touch them a little nearer. If it is inconvenient, or too costly, they grumble, but they no longer have the feeling that generations before them have inhabited it, and generations after them may do so. And where a man does feel more interest or pride in it such interest or pride is usually confined within the narrow limits of the hedge or fence which surrounds it. So little is the average interest that the great majority of men would scoff at the idea of building for themselves as a folly. And this is, we claim, because the average man has other things which interest him more, and from which he does not want to be diverted.

This seems to us the rock against which Professor Lethaby and other reformers struggle in vain. The world, while generally praising the aims and intentions of those who work for betterment, and express altruistic views, are so imbued with purely personal aims and ambitions that they will do nothing to forward reform.

Nor is it always easy to avoid suspecting—in an age which is both superficial, and at times cynical—that those very reformers who plead so eloquently for higher and better standards of social life are following an individual hobby which entertains them and through the medium of which they may even secure personal advancement, for it must be remembered that there are in our midst many who love fame and notoriety more than they do money itself, and would as freely purchase it were there not easier and cheaper ways of obtaining it. Who can say how many men would drop out of public life if no newspapers existed to report their speeches to a larger audience than can be held in any hall of meeting. For these, and other reasons, we are inclined to take a good deal of what is said *cum grano salis*. But if it be said that we are unduly pessimistic we are inclined to attach enormous importance to one factor: the existence of a large number of men who genuinely delight in and find their pleasure in what they do. The approach to all work of importance to the world seems to us to be through the gates of keen interest and enjoyment rather than by lofty and altruistic roads which are entitled "the service of the community." We may do good service to the world precisely to the extent to which we can find enjoyment in doing anything, and the most trivial of occupations performed in this spirit are worth all others. It seems to us impossible to predict whether architecture will ever, or can ever, regain the pre-eminence it once had among the great arts, but we are quite sure that if it does it will be because architects as a body become a class of men who more keenly enjoy their occupation than others do. And it seems to us important that they should more and more learn to enjoy the process and discount the results. After all, it matters little in the sum of things whether we have produced a masterpiece, but infinitely more whether we have enjoyed the process of creating it. For happiness is, fortunately for mankind, the most infectious of states, and one which endears man to man more strongly than anything else does or can. Modern conditions have given most of us greatly extended powers of freedom, which should be utilised in procuring for the individual increased opportunities of absorption in occupations he really enjoys, and it is this, more than anything else, we feel might lead to a more perfect state of future civilisation, which we should define as being contingent on the increased occupation of all men on work they really enjoy.

* "Form in Civilisation." By W. R. Lethaby. Oxford University Press. Humphrey Milford. 3s. 6d. net.

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Illustrations.

THE CHATEAU OF VAUX LE VICOMTE. Le Vau, Architect.

The chateau of Vaux le Vicomte, the garden front of which we give a view, is well known as the house in which Fouquet, the Surintendant of Finances in the reign of Louis XIV., gave his famous fête to the king, which immediately preceded his disgrace and downfall. It was built between the years 1656 and 1660 by Le Vau, of whose design it is a characteristic example. The chateau as designed was surrounded by a moat with retaining walls and balustrades, the entrance being by a bridge crossing the moat and leading to the forecourt, on three sides of which were low terraces. The fête at Vaux le Vicomte and the legendary attempt to substitute a brother of the king for Louis XIV. provides Dumas with what is perhaps the most dramatic episode among his romances in "The Vicomte de Bragelone."

REREDOS AND SCREEN: BURFORD CHURCH, OXON. Hoare and Wheeler, Architects.

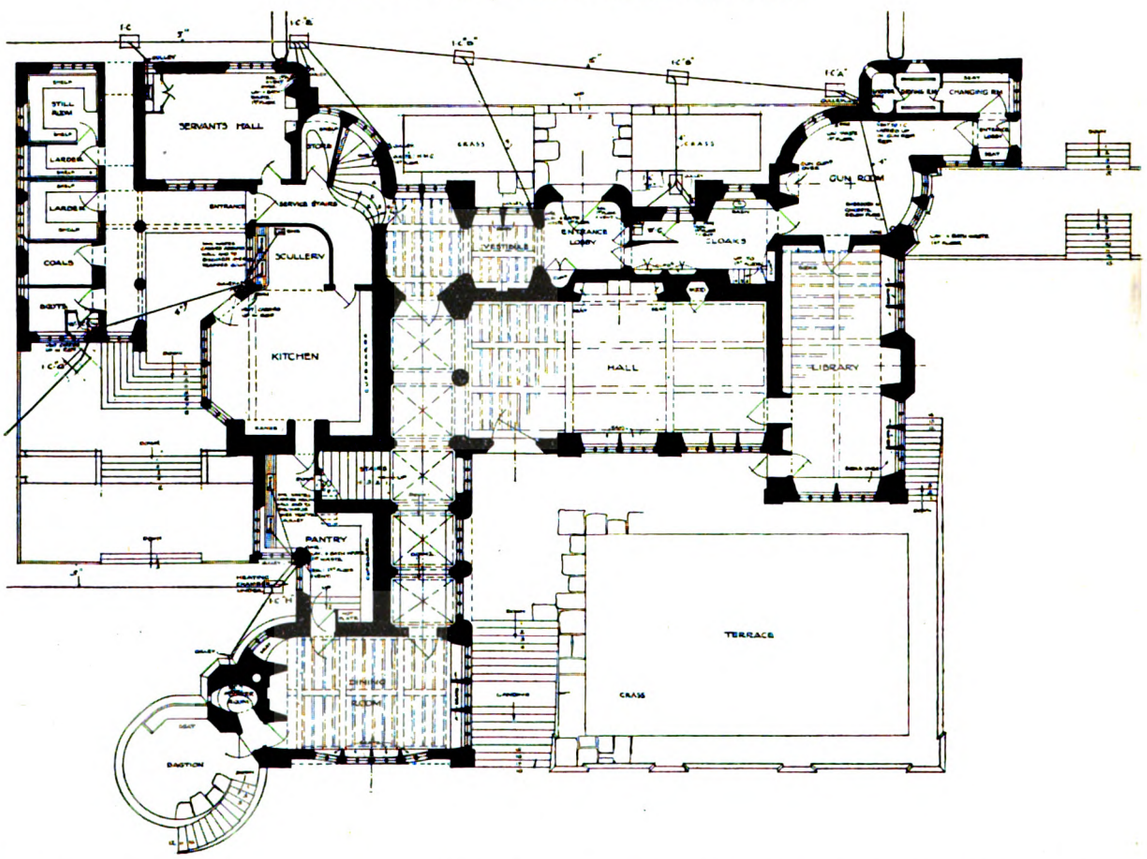
The altar and reredos, with the screen on the north side, which have been placed in the "Sylvester aisle," have restored to the church its former Lady Chapel.

Burford, pronounced by Street to be the finest church in Oxfordshire, is too well known to need description, but it will be remembered that the "Sylvester aisle" at the south-west corner of the building was formerly an Early English Lady Chapel, and was detached from the church altogether before the formation of the south aisle. After many years the altar has been replaced.

It was in this chapel that the horses of Cromwell's cavalry were stabled, and against its south wall Cornett Thompson and two corporals, who belonged to the force of Levellers, which had mutinied against Cromwell, were shot.

The reredos and screen were constructed in Camden stone by Mr. W. D. Gough, of Magee Street, Kennington. The architects were Messrs. Hoare & Wheeler, of 22 Portman Street, W.

HOUSE IN ARGYLLSHIRE. Oliver Hill, Architect.



The house is constructed of grey-green "Whin" stone, quarried on the site. The exterior walls have a two-inch cavity filled with asphalt. The roofs are covered with stone slates from the Isle of Purbeck. Iron casements have been used throughout. The solid framed ceilings and floors and the doors are constructed of oak from Hereford.

Notes and Comments.

The Fancy Dress Ball at Olympia.

The Architectural Association succeeded—as it usually succeeds in what its members undertake—in organising a very enjoyable fancy-dress ball at Olympia, in the Pillar Hall. If it did not surpass in interest similar undertakings among the students of the Quartier Latin in Paris it is because the Association students spend more time in serious occupations and have less to give to riotous enjoyment than their friends in the French capital, and because they have to maintain their character as members of the most dignified race in Europe. What they can do in quick time in the decorative arts was well exemplified in the decorative design which covered the balconies of the gallery, and which represented the whole gamut of architectural truths.

Many of the costumes were very effective, and if those adopted by the ladies indicate the trend of inclination in the direction of fashion we should confidently predict the banishment of skirts in favour of forms of covering of a more masculine character, but the ladies may have only wished to show us what chances of effect we lose in our every-day lives. Be this as it may, we are quite certain

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that those present on Friday night will excite such envy among their friends when they describe their experiences that the Association will be compelled next time to take the Albert Hall in order to find room for those who wish to come. In any case, when next the holding of the ball synchronises with that of a Building Trades Exhibition we believe Mr. Montgomery, who is quick at reading the signs of the time, will keep his exhibition within the limits of the Pillar Hall, and give the main building up for purposes of the ball.

The National Housing and Town Planning Council.

The fortnightly record issued by the National Housing and Town Planning Council still indicates that that body is prolonging its efforts to resuscitate that corpse—the Government Housing Scheme, but surely it is now time to give it decent burial. All political efforts cannot resuscitate it, since the national finances cannot pay for it. Whatever "pledges" have been given, by the unwise, the Government have practically recanted, as is proved by Sir Kingsley Wood's statement in "The Times," which we give:—

The State might not only remove any obstacle that might still stand in the way of private enterprise, but with great national advantage make available for the building trade the developed land now at the disposal of various authorities which is ripe for easy building. On this developed land 20,000 houses can be erected, and on fair and, perhaps, tempting terms it could be leased to private builders. Proper conditions would, of course, be imposed and public interests safeguarded, but it is a quick method of obtaining working-class houses without subsidy, erected by men whose business it is to construct them.

Why not assist further by way of loan those thousands of workers throughout the country who desire to purchase their own houses? A sound financial scheme would not mean a heavy financial commitment, and would do much to promote stability and thrift.

The State and the municipality should proceed under the Housing Act—a great and far-seeing measure—to do more to grapple vigorously with the grim problem (for no private builder is of avail here) as our housing condition and national finances both improve.

While Mr. Aldridge talks the tide of Government interference with private enterprise is receding week by week and day by day, and socialists who do not recognise this will be left high and dry in a world which they have wished to submerge with their doctrines, but which remains in spite of all their efforts.

A Distinction and a Difference.

A "Times" correspondent writing on Mr. Brangwyn's Picture Gallery in Japan says:—

Perhaps the greatest point of interest about the building is the fact that here we have an art gallery designed by an artist. Given the proper architectural training, there seems to be every reason why such a task should fall to an artist rather than to an architect. Mr. Brangwyn has had the training to fit him for the work, and so brings to the problem the ideal combination of architectural knowledge and artistic feeling. As an artist he knows the basic needs of a gallery. As an architect he can co-ordinate the artist's needs with architectural seemliness.

We do not know why the design of a picture gallery should fall to an artist rather than an architect. Presumably an architect is capable of mastering the necessary knowledge which should enable him to secure proper lighting; and, this being obtained, it seems to us that the structure of a gallery becomes a problem of planning combined with the simplest of decoration. We never knew that Mr. Brangwyn was an architect, as the writer seems to assume, while surely architectural knowledge and artistic feeling are not opposed factors, as the writer rather suggests. We do not suggest that Mr. Brangwyn's gallery does not merit all the praise that it has received, but we doubt whether there is any foundation for the assumption that the design of a gallery should not form a part of an architect's work.

Co-operative House Building in France.

A Frenchman, Georgia Knap by name, has thought of a method by which working men may obtain houses which the authorities will sanction for about £200. Knapp is a man of mechanical aptitude, and has invented a very simple system of concrete moulds. He built the electrical house, and is an expert in electrical cooking, a good joiner, and a competent surgeon. His procedure is as follows:—

Suppose that the building of a bungalow costs 15,000 francs, and that 5,000 francs represents the price of the materials, you can lessen the cost of your house by 10,000 francs if you are your own builder.

Moreover, since the State loans in certain cases as much as 80 per cent. of the total cost, you need not go to the bank for the money with which to buy materials. Your labour is your capital.

But if you were working all alone it would be a long and difficult task for you to erect a house. I suggest that you join an association composed of other families wanting houses, and that, helping one another, you speed up the work as quickly as possible.

As soon as a house is dry the owner can settle in one of the rooms, while at the end of his eight-hour day he will be able to refine every little detail, to finish the interior and exterior decoration, to erect bookcases, shelves, &c.

But he is not yet free during his week-ends. He is bound to the other fellows who helped him in the building of his house. He must help them in his turn.

The Knap cottages are still far from perfect, and the whole movement far short of its possible achievements. But it has already accomplished this end:

It has secured independent houses, perhaps less æsthetic, but certainly more ethical, with more air and more freedom, than the so-called artistically built-up suburbs, with their long rows of adjoining houses.

This procedure is worth noting, though it may not appeal to those who prefer State spoon-feeding.

The Advantages of a Good Site.

Over and over again a "cheap site" is found to be a dear one. The sites often allotted to swimming-baths were a case in point. An economical borough council would frequently buy a cheap site of awkward and irregular shape, which involved big extra expense in building and in administrative expenses. The average tea-shop proprietor does much the same thing: he chooses some site having a narrow frontage and great depth, with the result that more service is required, and that service and administrative expenses are increased. The reasonable alternative would seem to be to acquire a property of about three times the area needed, and to lay out the back part as a square restaurant, with a narrow hallway leading to it, flanked by shop sites devoted to other uses on either side. A tea shop does not require a big shop front, but a convenient area for economical working, and the arrangement we suggest would give this. Again, in choosing a site for a house how often a man takes a piece of uneven ground to save a comparatively small sum, while he loses many times the difference of cost between it and a better site in increased building expenses. Broadly speaking, it may be said that the best sites are, in the words of an advertisement, really the cheapest, especially now that building costs are greater in proportion to site-values than they were.

At the annual meeting last week of Dundee Institute of Architects (Dundee Chapter of the Institute of Scottish Architects) in the club rooms the following office-bearers were elected for the ensuing session: President, Mr. Charles G. Soutar, Dundee; Vice-President, Mr. D. W. Galloway, Brechin; Past-President, Mr. A. Granger Heiton, Perth; Council—Messrs. G. K. Young, Perth; W. Erskine Thomson, Perth; W. Walker, St. Andrews; Lake Falconer, Blairgowrie; and J. Donald Mills, T. Martin Cappon, Frank Thomson, George Jamieson, R. L. Hardie, V. Constable, and W. Allan, all of Dundee; Hon. Treasurer, Mr. P. H. Thoms, Dundee; Hon. Secretary, Mr. Wm. Salmond, Dundee.

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The Art of Arshag Fetvadjian.

(An Appreciation.)

By Cyril G. E. Bunt.

The art of Arshag Fetvadjian is essentially lyric, and although the Fates have in a degree directed his activities in the paths of architectural expression, yet he himself considers his vocation to be, first of all, that of a painter. He is not an architect, nor are his architectural drawings and studies in the first place architectural in interest. That is, they are in no sense constructional or analytical. They are all ultimately historical or archæological,—faithful and often beautiful records of the past glories of his race,—loving records of the genius of Armenia when at the apex of its national life.

The Royal Institute of British Architects, having set the seal of its approbation upon his activities by holding an exhibition of his work (preceded by an address by the artist, translated and presented by Professor Lethaby), has shown that it is in every way worthy of serious acceptance. Many who have seen the drawings previously at the Victoria and Albert Museum will have formed that opinion already.

To know Mr. Fetvadjian is to know that it is his earnest ambition to be taken seriously. His wish is that critics should treat his work gravely, not because of its intrinsic merits (he is the most modest of men), but because of its deeply interesting subject. His life's mission may be said to be to place before the world, by means of his art, Armenia's claim to due recognition as a prime influence on early Christian art.

Fired by this patriotic motive he has culled from the ruins of his country's beautiful monuments a sheaf of records which are of great archæological value, and, with a wonderful skill of pencil and brush, he has caught the spirit of every stone of these sadly neglected buildings. Looking at the Fetvadjian drawings one feels the great and lasting pity of it that these unique churches, these truly beautiful carvings, these monuments of skill of unknown artists, should have been allowed to fall into decay. One feels that the whole of Armenia should be put under a glass case and preserved before it is too late, so that not one particle more of the glory that has almost gone shall escape us.

Strzygowski has done much with his photographic illustrations. But the best that can be done has been done by Fetvadjian. For he has a wonderful way with his pencil, and can give us the very texture of the stones he portrays. He is exact without being slavish, artistic without parading his artistry. And the secret of his power is a great devotion, as much to his country as to the practice of his art. To know that he has spent the best years of his life in the task of picturing his country's faded glories proves him an enthusiast, and although enthusiasm is not synonymous with talent, it requires but a glance at his clever work as exhibited in his water colours to show that the two qualities are in him blended. Although he has travelled through Europe, since losing his home, pictures, and books in far Tiflis, and has exhibited in Russia, Austria, Germany, and France, he has found in London more warm-hearted appreciation than anywhere. He has come among us from an almost unknown land, and he finds London altogether too vast, too complicated to be grasped. But when he goes from us, as he probably will ere long, he may at least take with him the consciousness that he has opened the eyes of architects and other artists, no less than many of the wider public, to the wealth of charm and intrinsic beauty that is the heritage of dismembered Armenia. Numbers had never before known there was such a thing as Armenian art. Now they know not only that there was such in the past, but that the tradition and spirit thereof is alive to-day in the person of Arshag Fetvadjian.

Design for a R.I.B.A. Poster.

1. It is proposed to hold a competition amongst architectural students for a design for a poster to be used in the premises of the R.I.B.A. for advertising the Exhibitions of Drawings which are held from time to time in the R.I.B.A. Galleries, 9 Conduit Street, W.1.

2. The poster should be 3 feet 6 inches high and 2 feet 9 inches wide over all, and should incorporate the following:—

Dates	R.I.B.A. Device	Dates

EXHIBITION

.....

.....

OPEN TO THE PUBLIC

ADMISSION FREE

Hours .....

Saturdays.....

3. The design should be in black and white only.

4. The competition is confined to students in their fourth or fifth year at a "recognised" school of architecture. Each school will be requested to select the three best designs of those executed by its students, and to forward these for examination by the jury.

5. *Jury.* The Art Standing Committee of the R.I.B.A. has appointed a jury consisting of the following gentlemen to act as assessors and to make the award:—Mr. Halsey Ricardo, F.R.I.B.A.; Professor S. D. Adshead, M.A. (F); Mr. Alfred Cox, F.R.I.B.A.

6. A prize of five guineas will be awarded to the author of the premiated design, and the Royal Institute reserve the right to purchase such other designs as they may think fit.

7. Designs forwarded to the R.I.B.A. for examination by the jury will be exhibited at the R.I.B.A. Galleries.

8. The final date for receipt of designs will be July 15, 1922, at 12 noon.

9. Designs should be signed with a motto or *nom de plume*. The package containing the design should also contain a sealed envelope containing the competitor's name and address, with the motto alone written upon the outside.

10. The result of the competition will be published in the R.I.B.A. "Journal," and also in the following professional papers:—"The Architect," "The Builder," "The Building News," "The Architects' Journal," "The British Builder."

11. Any questions relating to these conditions should be submitted to the Secretary, R.I.B.A. not later than May 13, 1922.

An exhibition of the Coke collection of Smithson drawings (by the kind permission of Mrs. S. Coke), and of some newly found drawings of John Webb (by the kind permission of Sir Vere Isham, Bart.), will be held at the R.I.B.A. Galleries from May 2 to 17.

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London Art Galleries.

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The Goupil Gallery opened last Wednesday an exhibition of the recently executed paintings of Charles Ginner, which will be on view from April 20 to May 11. These oil paintings show very direct work, with clean colour and good drawing, in such subjects as "Clarendon Dock, Belfast," and "On the Embankment," cleverly framed in the curve of an arch. Good examples are also "A Dorset Orchard," with its sense of fresh verdure, the well-composed "Dorset Cliffs," and "Valenay Valley" in Cornwall. One of the least successful is "Golden Cap," where the grey-blue mountains seem all on one plane, and the distance threatens to get in the way of the foreground. Upstairs in this Gallery we find the work of three ladies, Mary McCrossan, Marjorie Sherlock, and Mary Rowe Wallace, with, in the first room, pastels and monochromes by W. Arnold Forster. This latter has fine atmospheric creations in such scenes as his "Arno Plain" with its sea of misty blue, or again "Summer Clouds" and "Evening after Rain." In "Fog in the Appenines" this atmospheric visitant is not of the pea-soup character to which we are unluckily accustomed in a London winter, but a soft veil of white cloud lying beneath the hill tops: in "A Cloud" it floats deliciously, suspended against the blue in mid-heaven, while in "Suidhe Fergus" the aspect of the clouds is dark, ominous, the mountain peaks just emergent. This is, in fact, successful use of pastel in atmospheric landscape; and it may be questioned whether any other medium could give the same effect, or whether the artist himself succeeds equally in his oil paintings shown here.

Mary Rowe Wallace takes the subject of her oil paintings shown here from Venice and mainly from Taormina. She paints with a somewhat heavy "impasto" in such scenes as "Church of the Capuccini" and "Lemon Yard in Spring," and evidently feels colour—that wonderful colour of Sicily and the South—very strongly, but has not yet got it under her command, and occasionally gets carried right off her feet. We trace this in "Sea and Cypresses," where the sea jumps abruptly from French blue to turquoise and purple and the grave cypresses are coloured like a peacock's tail; and again in her almond blossom, which seems laid on in a moment of fine frenzy, as with a palette knife. On the other hand, "The Caryatid," an Italian peasant girl in the beautiful fields, is one of her best, and the figure, well drawn, has dignity and sentiment.

Miss A. Marjorie Sherlock has taken the subject of the most of her drawings and paintings from the countryside celebrated by Mr. Thomas Hardy in his Wessex poems and novels; and, we are told, "must be aware, as a fellow-townswoman, of the quiet but compelling influence Mr. Hardy exerts on the popular notion of what Dorset looks like." But her paintings here of such scenes as "Crossways, West Stafford," of "Weymouth Harbour" and "A Dorset Landscape" are strong and personal, and evidently no mere transcript of literary impression. She is less successful with her pen-and-ink drawings; for in such a subject as "Bockhampton Farm Yard" we are worried with too much detail and too little contrast of light and shade; the "Collis Stile, Islip," is much better, and the distance here is well treated.

But, in my judgment, decidedly the most interesting of this trio of women artists is Mary McCrossan. I have already mentioned her work in these columns in connection with the exhibition last month of the Women's International Art Club; and the clever painting of "Amalfi," which attracted my attention in that exhibition, and which has been well reproduced in colour in this month's number of "The Studio," appears now with some dozen oil paintings and double that number of water-colour drawings. Their subject-matter is mainly drawn from Italy, but on a higher level of technique than those just mentioned. Miss McCrossan's oil work in such scenes as "The Road to Perugia," "Amalfi," "Porto Fino in Twilight," and again, "Burton Downs" is strongly put in and rich in colour, and her water colours are singularly clean, light, cool and luminous. For instance, her "Ravello, No. I," is a little gem, and she gets something of the real feeling of Italian landscape in such themes as her "Fiesole," "Environs of Florence," and "Cypresses, Amalfi." Her "Temple of Castor and Pollux, Forum," is a mere sketch in soft outline, with the colour suggested, and "The Tall Tree" seems to me to recall the little harbour of Porto Fino, one of the most delightful spots on the Ligurian coast.

The Cotswold Gallery in Frith Street, Soho, a charmingly arranged and comparatively new gallery—for it was only opened this winter—is occupied this month with drawings of Avignon and studies for etchings by F. L. Griggs, R.E. This artist's etchings have already come before us in these columns when exhibited in the Twenty-One Gallery, but the drawings are something new, and it is evident that in the old-world Papal city of Avignon Mr. Griggs found a subject after his own heart. Nothing, in fact, could be better of its kind than the drawing in soft pencil of the famous bridge of Avignon, which commences this display. Where the subjects are coloured—as in "Le Palais des Papes," where the stern old mediæval fortress-palace rises out of a tangle of red-tiled roofs—the colouring is only suggested in red chalk and black, and I understand that the artist frequently works on old paper whose age has brought a mellow tint. The etchings and studies—as I have had occasion to mention before—are in most cases, as here in "Sacrilege" and "The Monastery," inventions of the artist's fancy, based on a deep sympathy and thorough knowledge of Gothic design; and I heard a story recently of a lady visitor, delighted with a rambling Tudor cottage, and inclined to consider whether it might be to let furnished, being disappointed on finding it was an airy fabric of the fancy. I may mention incidentally here that in the Cotswolds, where Mr. Griggs has often worked, there is quite a group of artists forming, and that hence comes the name selected for this gallery.

At Walker's Galleries the water-colour drawings of the late Claude Hayes are closing on April 22; and it is satisfactory to find that the work of this excellent artist, who had based his early work on Constable (the "Autumn" here might serve to suggest this) has sold well, three of the larger drawings going respectively to the Birmingham Gallery, the Whitworth Institution at Manchester, and the Victoria and Albert Museum. The "Water Colours and Pastels of the Isle of Skye; Dartmoor; and Cornwall," by Warwick Goble, have just opened here, and remain till May 4. We might suspect that the artist had visited Skye under very bad weather conditions; but he finds for us some really magnificent colour-effects in these rain-laden clouds and misty peaks, and the same applies in a less degree to his studies of Dartmoor. At Colnaghi's Galleries the dry-points and etchings by James McBey, many of them dealing with the war in Egypt and Palestine, are a choice collection of fine quality throughout.

S. B.

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Modern Methods in Building Construction.—XIV.*

By Albert Lakeman, M.S.A., M.C.I.

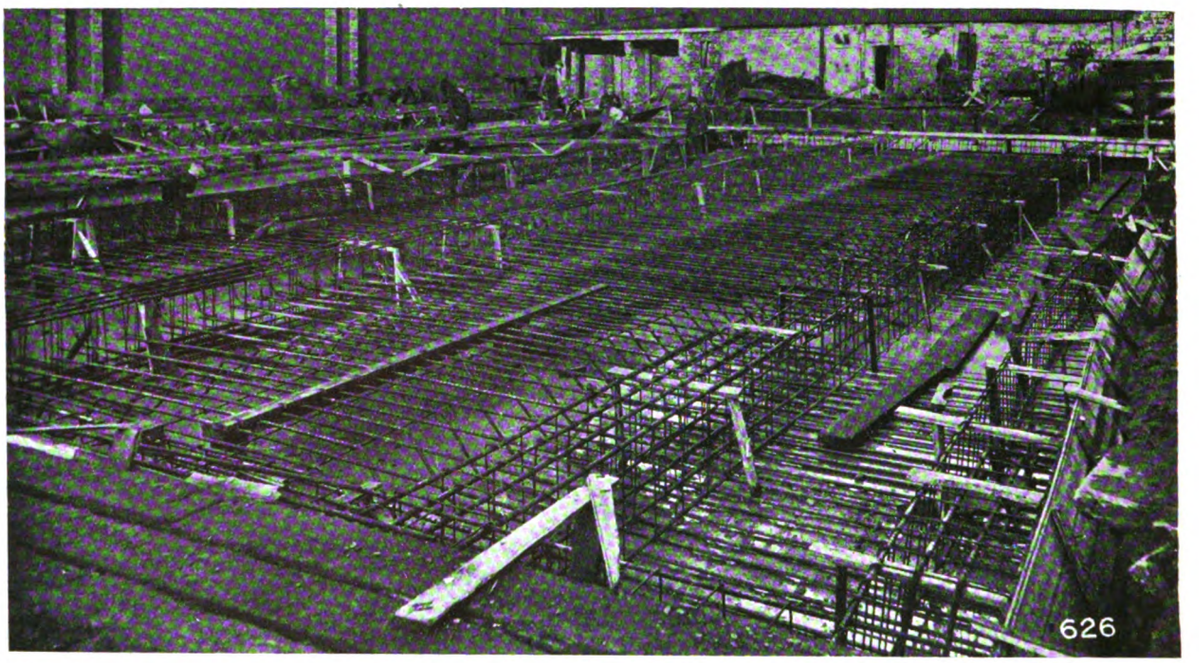


Fig. 70.—REINFORCED CONCRETE RAFT AT GREENOCK.

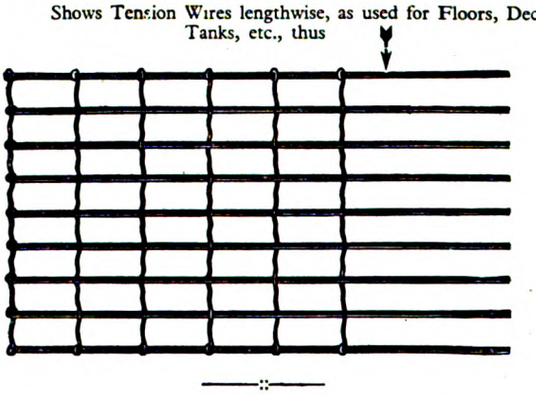
Foundations in Soft Soils (*cont.*).

An interesting example of the use of a reinforced-concrete raft in foundation work is that illustrated in fig. 70.

This raft was designed by Indented Bar and Concrete Engineering Co., Ltd., in order to provide a suitable foundation for a retort-house for the Greenock Gas Co. on what was, in places, exceedingly bad ground. The nature of the site was so uncertain that it became necessary in some parts to fill in with mass concrete before the steel for the reinforcement could be put down in position. The raft is of the slab type, made up of six beams 2 ft. 3 in. deep overall, filled in with 16-in. slabs. The total area is just over 5,500 super feet, and the average load carried by the raft is 15 cwt. per square foot. The centre four beams were designed to carry forty retorts, and the outside ones were arranged to carry the walls. The illustration gives a good idea of the reinforcement, which consisted of indented bars, in position. The work was carried out by Messrs. R. Aitkenhead & Son, Ltd., for Messrs. Woodall-Duckham & Co., Palace Chambers, Westminster.

"Johnson's Steel-wire Lattice" for reinforcing concrete is manufactured by Johnson's Reinforced Concrete Engineering Co., Ltd., of Lever Street, Manchester, and this is made up with steel which is "wire drawn," a process which solidifies and increases the tensile strength inasmuch as the operation subjects the material in course of manufacture to severe tensile stress, which enables weaknesses or flaws to be immediately located. This steel wire possesses a tensile strength up to 40 tons per sq. in., and the finished lattice fabric can be obtained with the main tension wires running either longitudinally or transversely, as desired. The material is made in sheets up to 7 ft. wide, and any length required, or in rolls up to 200 ft. and any width up to 7 ft. The two types are illustrated in fig. 71, and it will be seen that the transverse wires are crimped to ensure accurate spacing of the tension wires, which are maintained in position without any welding or wiring at the crossings, and also the edges of each roll or piece of fabric are knuckled over and left smooth, which is claimed as a distinct

Shows Tension Wires lengthwise, as used for Floors, Decks, Tanks, etc., thus



Shows Tension Wires Crosswise, as used for Corridors, Staircases, small spans of any length, etc., thus

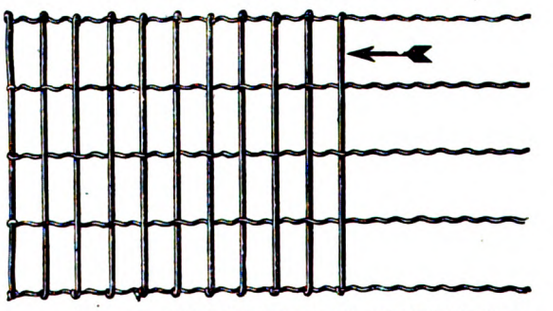


Fig. 71.—JOHNSON'S STEEL-WIRE LATTICE.

advantage, as damage will not be caused to other material in the vicinity, workmen can handle without injury, and anyone passing by the work while it is in progress can do so safely and without risk of accident from projecting wires.

Other advantages claimed as compared with the use of ordinary loose rods are (*a*) the uninterrupted

* I. Introduction, Steam Shovels, Jan. 13; II. Steam Shovels (*cont.*), Trench Diggers, Jan. 20; III. Grab Buckets, Scrapers, Jan. 27; IV. Drag-line Excavators, Feb. 3; V. Derricks and Cranes, Radial Loaders, Feb. 17; VI., Surplus Soil Transport, Feb. 24; VII. Surplus Soil Transport (*cont.*), Mar. 3; VIII. Surplus Soil Transport (*cont.*), Mar. 10; IX. Surplus Soil Transport (*cont.*), Mar. 17; X. Surplus Soil Transport (*cont.*), Mar. 24; XI. Foundation Work, April 7; XII. Foundation Work (*cont.*), April 14; XIII. Foundation Work (*cont.*), April 22.

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continuity of the tension wires, which extend from end to end of the building; (*b*) it is economical in steel, as wastage due to overlapping is eliminated, thus saving material to the extent of from ten to twenty per cent. When continuous slabs are required, the lattice is laid between the beams in camber form, thus dispensing with independent tension strips over the points of support to take the reverse bending moment, this resulting in a saving of material, which in many cases equals twenty per cent., and (*c*) as the lattice is delivered on to the site as a complete fabric, setting out and spacing of the rods is dispensed with, and a saving in labour and supervision costs is made.

The fabric is made in several standard strengths, grouped under two headings, viz., home trade and export trade.

The reason for this grouping is that the fabric for export is made with several small tension wires in the place of a single tension wire, as this method considerably reduces the diameter of the rolls for shipping purposes, and also facilitates unrolling the material on the site.

The home trade group contains fifteen standard types designated by pattern numbers. Three sizes of mesh are made, viz., 2 in. by 4 in., 1¾ in. by 4 in., and 1½ in. by 4 in. The lightest lattice is Pattern No. 102, which is 2 in. by 4 in. mesh, with No. 10 gauge tension wire, No. 11 gauge binding wire, approximate weight of 3.5 lb. per square yard, and an effective sectional area of .0772 sq. in. per foot of width. The heaviest type is Pattern No. 30, which is 1½ in. by 4 in. mesh, with No. 3 gauge tension wire, No. 11 gauge binding wire—the latter being common to all standards—approximate weight of 13.5 lb. per square yard, and an effective sectional area of .399 sq. inches per foot of width.

In the standard pattern numbers the first number indicates the gauge of the tension wire, except where the number is 100 or over, and then the first two numbers are taken. As example, No. 102 has No. 10 gauge tension wire, and No. 60 has No. 6 gauge tension wire. Owing to the heavy gauge wires used in Nos. 32, 31, and 30 these can only be supplied in sheets of maximum size, 25 ft. by 7 ft., but three standards of equivalent strength, Nos. 272, 271, and 270, having two No. 7 gauge tension wires in place of the single wire, are made, and these can be obtained in continuous lengths up to 200 ft. In the list of sizes for export there are nine standards, and the tension wires are grouped with two, three, or four No. 10 gauge wires, according to the sectional area

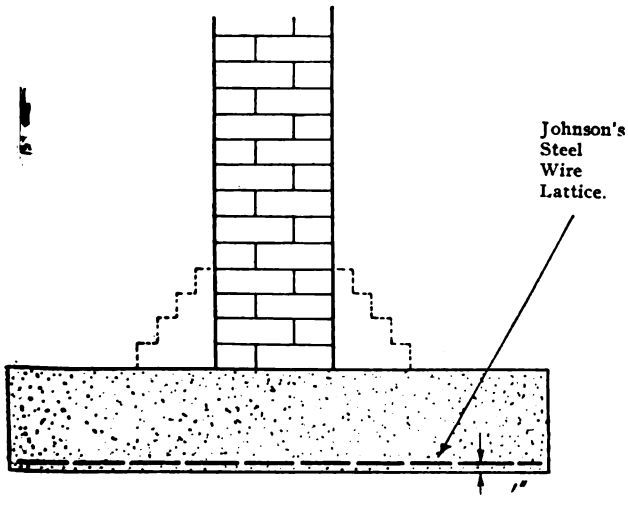


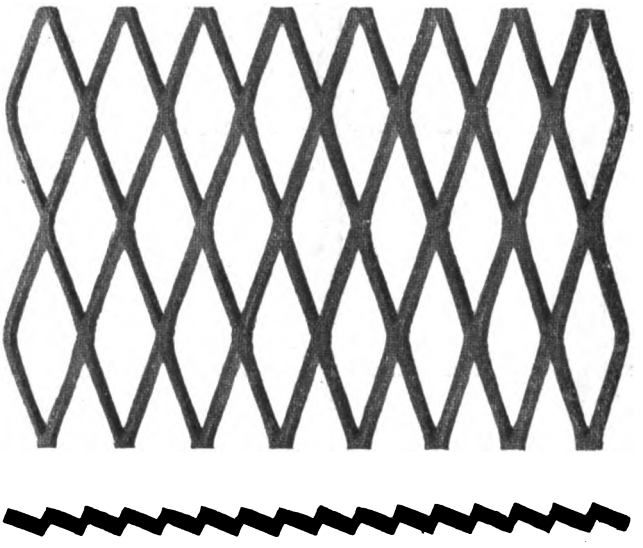
FIG. 72.—WIRE LATTICE IN WALL FOUNDATION.

required, the lightest standard having a weight of 5.8 lb. per square yard, and the heaviest a weight of 13.83 lb.

The same firm also manufacture a light fabric reinforcement which is known as Johnson's "C" pattern lattice, and this is very useful for cases where light loads only have to be carried or where it is necessary to have some steel to prevent cracking due to temperature changes. This light lattice is made in three standards, where the tension wires are spaced at 3¼ in. and the gauge is No. 9, 10, or 12. The sectional areas provided per foot width of cross-section are .0602, .0477, and .0314 sq. in.

The application of Johnson's Steel-wire Lattice as a reinforcement for the concrete foundation to a brick wall is given in fig. 72, and it will be noticed that the footings usually provided and shown by dotted lines are not required, and the work is therefore simplified. Messrs. Johnsons issue some useful tables in connection with these foundations, giving the requirements for various thicknesses of walling, different loads on the walls, and various safe pressures on the soil.

This firm also supply fitments for general reinforced concrete work, covering stirrups and hoops of special type, and useful particulars of these are also published. The details of the general work, however, can be more fully dealt with in connection with the main superstructure hereafter.



SECTION THROUGH INTERSECTIONS.

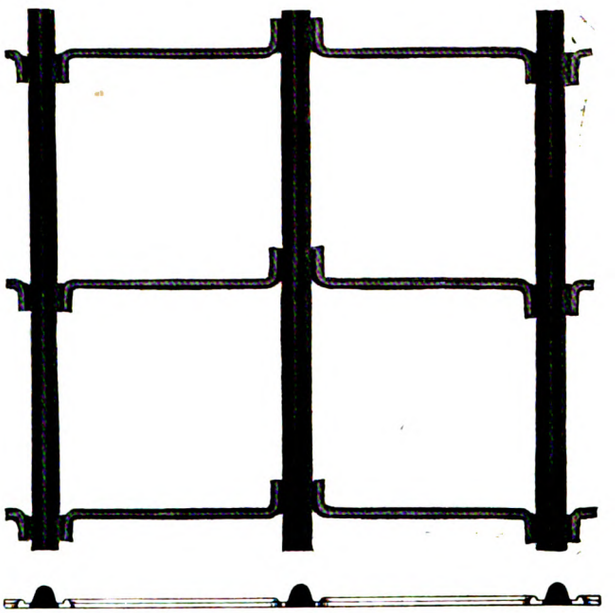
FIG. 78.—DIAMOND MESH EXPANDED METAL.

"Expanded Metal," which is manufactured by the Expanded Metal Co., Ltd., of London and West Hartlepool, has been extensively used in foundation rafts, and this material is obtainable in several different standards to suit various requirements. The fabric is made from sheets of rolled metal of various thicknesses, cut and expanded by machinery into meshes of various shapes, each of which is made in several strengths or weights. It is claimed that the material is made from best quality mild steel sheets, and the finished article is itself the best evidence that the plates from which it is made must be of good quality and free from flaws and defects; otherwise, in expanding, any defect in the plate would cause fracture of the strands. The increase in tensile strength after distension is found to be considerable, and several tests have been made by Messrs. David Kirkaldy & Son for the Expanded Metal Co., in addition to independent tests which confirm this increase. The types made can be classified under two main headings, viz., "Diamond Mesh," as illustrated in fig. 73, and "Rib Mesh," as shown in fig. 74. Each type is available in several standards, there being about thirty price-list numbers for the "Diamond Mesh" and five price-list numbers in the "Rib Mesh."

The diamond mesh is made with a dimension of 6 in., 3 in., or 1½ in. across the short way of the mesh, and the weight per yard super varies from 1¾ lb. to 34½ lb., with a careful graduation between. The calculated sectional area of the strands in one foot run the short way of mesh varies from .0625 sq. in. to 1.125 sq. in. Generally speaking, the standard sizes of the sheets is from 4 ft. to 8 ft., the long way of mesh rising 6 in. at a time, by any width up to 16 ft. the short way of mesh, or 8 ft. to 16 ft. the long way by

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any width up to 8 ft. the short way of mesh. There are some variations on these sizes according to the weights of the material, and special lengths and widths may be obtained at slightly additional cost. The makers state also that while sheets are limited in length, long-way of mesh, to the longest length given against each price-list number, some can be made short-way of mesh, in much greater widths, as Nos. 32, 13, and 12 can be made 48 ft wide, and Nos. 31, 24, 10, 8, and 6 can be made 24 ft. wide. If the sheets are required flat, however, they should be limited in size to 8 ft. by 16 ft., as larger-sized sheets have to be sent out in rolls, and extra cost on transit and labour is involved.



RIB MESH EXPANDED METAL.

FIG. 74.—A STANDARD SHEET OF RIB MESH EXPANDED METAL HAS NINE MAIN RIBS.

In the case of the rib mesh, a standard sheet has nine main ribs, and the sectional area of one rib equals .09 sq. in. The size of mesh or width between the ribs varies from 2 in. in No. 2 to 8 in. in No. 8, and as the same number of ribs will be given in each case the smaller mesh means a shorter expansion of the sheets, and consequently a narrower width in the finished fabric. No. 2 has a calculated sectional area of .54 sq. in. per foot of width, and the total width of the standard sheet is only 16 in., while the standard length ranges from 10 ft. 6 in. to 24 ft. 6 in., rising 2 ft. at a time. The lightest type, which is No. 8, has a calculated sectional area per foot of width of .135 sq. in., and the standard width of sheet is 5 ft. 4 in., with a standard length ranging from 10 ft. to 24 ft.

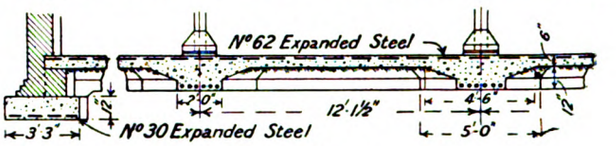
In placing the rib mesh it is not necessary to overlap the standard sheets where they join laterally, as they may be spaced apart at the same distance as the ribs in the sheets, and may be joined by means of wire clamps or dogs. The dogs are supplied at no extra charge, and are sent in quantities necessary for the rib mesh ordered.

Several advantages are claimed by the makers of this type of fabric, and they state that as a reinforcement for concrete it has exceptional qualities, especially in plain and curved areas. It is supplied in flat sheets ready for use, it packs closely, and is easily transported and quickly handled; it is simple, economical, and effective. The expanded sheets are machine made, and, although of network formation, there are no loose strands, as the junctions between the meshes remain uncut during the process of manufacture, and thus the strands or members are all rigidly connected, and have continuous fibres which are claimed as important features peculiar to expanded metal. Other advantages claimed are that the meshes key into each other, and consequently interlock when the sheets overlap at joints: thus the reinforcement may be made absolutely continuous, no matter how large the area to be treated, and that perfect mechanical, as well as cross bond, and consequently anchorage, is obtained, seeing that the expanded steel is a double-way reinforcement, which, owing to its peculiar formation, cannot slip within the concrete, for this is most efficiently locked within the meshes. All the general advantages of a complete fabric over the obsolete loose-rod system are claimed, and also that the distribution of stress is perfect.

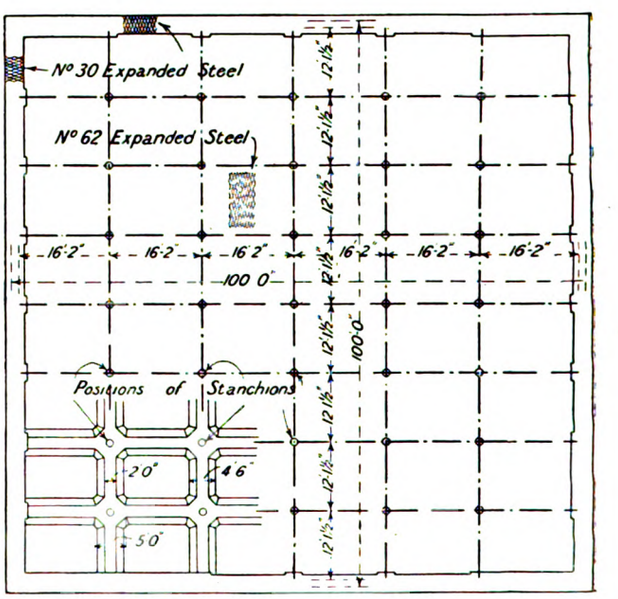
When using the diamond mesh the sheets must be laid with the long way of the meshes from support to support, and in the case of the rib mesh the ribs will run from support to support.

One mesh overlap is the minimum that should be given at the ends and sides of the diamond-mesh sheets, and with the rib mesh one mesh overlap should be given at the ends and the sides should be joined with dogs, as previously mentioned.

Numerous examples of foundation rafts executed with expanded metal reinforcement could be given, but one typical case should be sufficient to illustrate the application to work of this nature. This example is given in fig. 75, and shows the plan and section of a raft constructed for the Royal Primrose Soapworks, at Silvertown, under Mr. W. Stewart, F.R.I.B.A., who was the architect. It will be seen that this is designed with beams running across the building in both directions, intersecting under the columns and ensuring the efficient distribution of the loads. These beams are spaced at 12 ft. 1½ in. and 16 ft. 2 in. centres, and the slab filling is 6 in. thick reinforced with No. 16 expanded steel placed in the upper surface to provide for the upward thrust caused



SECTIONAL DETAIL.



PLAN (INVERTED)

FIG. 75.—EXPANDED METAL IN CONCRETE FOUNDATION RAFT.

by the reaction of the soil. The wall in this instance is not supported on the raft itself, but is carried down to a lower level and provided with its own reinforced-concrete foundation. This is a very stiff type of raft foundation, and it would ensure that if any settlement occurred it must be a uniform one due entirely to the slight compressibility of the soil, and the structure would

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not be endangered as in the case of unequal settlement of the columns, which would probably occur if each was provided with a separate foundation base and the soil was at all uncertain.

When the soft ground is very deep, and heavy loads have to be carried, the raft can be assisted by the introduction of piles, but the types of piles suitable and the methods of driving will be dealt with under the notes dealing with water-logged ground, when it is absolutely essential to obtain a bearing on the soil at a low level, and such notes will be sufficient to cover the application of piles generally.

The use of raft foundations, although not modern in some respects, has developed considerably during recent years, and this is partly due to a more general knowledge of their suitability for cases where the soil has a small bearing capacity, but the principal factor in the development has been the great progress in reinforced-concrete work, and the introduction of suitable fabrics which have enabled raft work to be executed in an economical manner and at a rapid speed.

Many examples could be given of buildings that have been satisfactorily erected on raft foundations during recent years at a considerable saving in cost, but the foregoing details should be sufficient to indicate the suitability of this method to overcome the difficulties of made ground or soft soil in these days when it is essential to reduce building costs to the absolute minimum in order to ensure that the work will not be abandoned by the building-owner on the ground of excessive initial outlay.

(To be continued.)

Correspondence.

Unification and Registration.

To the Editor of THE ARCHITECT.

SIR,—I have sent the letter, of which I enclose a copy, to Mr. Buckland.—Yours, &c.,

SYDNEY PERKS.

The Guildhall, E.C.

[COPY.]

UNIFICATION AND REGISTRATION.

DEAR MR. BUCKLAND,—I have consulted Messrs. Cross, Hubbard, and Searles-Wood, and four men representing the R.I.B.A. Defence League would be most happy to meet any four men who represent the Institute on the above Committee to hear their views on the scheme, and any reasons why we should withdraw our strong opposition to it.

Yours very truly,

(Signed) SYDNEY PERKS.

To the Editor of THE ARCHITECT.

SIR,—We are indeed indignant at Mr. Keen's unjustifiable suggestion that we "stole a march on our provincial members by seeking a snap vote at a London meeting." With reference to the meeting on February 7, a notice was printed in the "Journal" of January 28, with a heading in large type "Special General Meeting." That notice gave the resolution to be moved; a notice in red ink also giving the resolution was pasted on the front of that number of the "Journal." Town and country members had the same notice, and the Secretary received about 170 letters from members who could not attend and who all supported the resolution. The room was crowded, and the Presidents of Allied Societies from Liverpool, Birmingham, Bristol, Sheffield, and Manchester were present; there were also speakers from Doncaster and Cambridge, and other members from the provinces attended. During the evening the President referred to those "who came from outside London and who came at some inconvenience." The resolution, *exactly as submitted to every provincial member*, was voted on, with the well-known result that 112 men supported it and only 66 men voted against it. In the face of these facts, how dare Mr. Keen state we "stole a march on our provincial members by seeking a snap vote at a London meeting"? It has been apparent for some time that Mr. Keen fails to appreciate the meaning of the word "Unification." Does our Hon. Secretary know what a "snap vote" is?

With regard to another point raised by Mr. Keen, of course we gave the Parliamentary agents the exact wording of the necessary part of the resolution passed by the Unification Committee, and not Mr. Keen's subsequent explanation of it. If he was of opinion that only selected or approved architects should be admitted to our Institute, why did he not say so at the meeting on May 21? Then, again, he had a chance at the meeting of that Committee on February 7, and again he failed to do so.

Mr. Keen asks members to "read what the Unification Committee says." We have been urging this for months past, and that was why we recently sent you important extracts from the report in the "Journal" showing as plainly as possible that speakers were in favour of admitting "all architects" to the Institute, and not only those men our Council in their wisdom might think entitled to that honour.

Mr. Keen accuses us of opposing Registration. We sent out a pamphlet to every member stating, "The R.I.B.A. Defence League is not opposed to Registration," and we have stated that principle on every available occasion.

Just one other instance of the questionable methods employed by some supporters of the so-called Unification scheme. It is well known that the Unification Committee passed four resolutions on May 21, and that they were published for general information. They were considered by the Council, and subsequently, on February 7, by the General Body. The whole of the minutes of the Committee meeting on May 21 are published in the "Journal" of May 28, p. 428, &c. Anyone with the most elementary knowledge of committee procedure knows that a committee can only report as a result of resolution or resolutions afterwards recorded in the minutes. Our Council published in the "Journal" of March 25, on p. 308, a statement that the Unification Committee "issued an interim report . . . for the consideration of the Councils of the R.I.B.A. and of the Society of Architects. This report, which had the almost unanimous support of the whole Committee, was, in effect, a recommendation that unification of the profession should be effected by the inclusion of qualified architects in the R.I.B.A.," &c. A reference to the minutes of the Unification and Registration Committee will show that they made no interim report to our Council, or to the Society of Architects, or to any other body.

We leave your readers to form their own opinion; but, having regard to the facts recorded above, who can wonder at the great and growing indignation of many members of the Royal Institute of British Architects?—Yours, &c.,

A. W. S. CROSS,
H. D. SEARLES-WOOD,
Vice-Presidents, R.I.B.A.
GEORGE HUBBARD,
SYDNEY PERKS,
Secs., R.I.B.A. Defence League.

To the Editor of THE ARCHITECT.

SIR,—I feel sure the following letter which I have received this morning will interest your readers. It is very interesting to know the interest taken in this matter by our members so far from London.—Yours, &c., SYDNEY PERKS.

[COPY.]

"*Registration and Unification.*

"I shall be obliged if you will add my name (as an Associate R.I.B.A.) to the list of members of the R.I.B.A. Defence League.

"Being about 5,000 miles from London, one feels scarcely able to take part in a controversy in the professional papers, but there is one point in connection with the above subject that I do not remember seeing brought out in the letters and reports of meetings which I have seen.

"Different people have referred to the undesirability of bringing all sorts and conditions of so-called architects into membership of the Institute, but what about the people who would not come in?

"I remember the case of a fairly well-known provincial architect (now deceased) who probably could have been elected a Fellow before 1909, or could easily have secured admission to the Licentiate class, but did not trouble to take the necessary steps to secure election.

"It seems to me that whereas a certain number of architects with doubtful qualifications would jump at the opportunity of joining the Institute opened to them under a 'Unification' scheme, quite a considerable proportion would *not* wish to do so, as they do not now observe (nor would they care to be bound by) the standard of professional practice that the Institute would require them to comply with.

"Without a Registration Act to 'compel them to come in,' unification would actually be as far off as ever, and the 'architect and contractor' and 'house agent and architect' would continue to flourish as aforetime."

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The Architectural Association.

An ordinary general meeting of the Architectural Association was held on Monday last, the 24th inst., at 34-35 Bedford Square, W.C., Mr. W. G. Newton, M.A., A.R.I.B.A., President, occupied the chair.

There were five nominations for membership, and six new members were elected.

Mr. Newton said he was not in a position to announce the financial result of the dance at Olympia last week, but the Council wished him to mention that they had carried a vote of thanks, first to Mr. Greville Montgomery for his kindness in bearing a large portion of the expense, secondly to Mr. Champneys for his very admirable poster, and thirdly for those few devoted and heroic souls who went early and decorated the room—viz., Miss Cooke, Miss Chambers, Messrs. Bucknell, Champneys, and Slaughter. Thanks were due to those workers for making a very ugly room look beautiful.

The principal business of the meeting was an address by Mr. Arie Keppler (Director of Housing, Amsterdam) on "Modern Housing in Holland." Mr. Keppler courageously elected to speak in English, and his efforts resulted in an unexpected piquancy being introduced into many of his remarks. The greater part of his paper and of the subsequent lantern slides were devoted to the problem as it affected his own city of Amsterdam. The following report, however, will bear the official title of

Modern Housing in Holland.

Amsterdam, originally a mere fishing village near the Zuider Zee, developed through commerce and fishing until in 1342 it became a Hanse town. Nothing now remains of secular Gothic, and only a few churches are to be found in that style. It was not until about 1500, with the beginning of the Renaissance in Holland, that Amsterdam commenced to develop into an extraordinary town of commerce, art, and science, and into a capital worthy of this small country, which had become a country of international importance by the seventeenth century—known to Dutchmen as the Golden Century. In art as in everything else the Renaissance signified a reaction against Church dogma. In opposition to the mediæval spirit the Renaissance assumed a national character in every country; in Holland this was very decidedly the case. The free development of personal thought, the individualisation of man, works nowadays in a contrary direction to the Renaissance ideal and produces intellectual anarchy.

During the historic period Amsterdam was twice extended. The extension of the original old town began about 1480. Later on, in 1660, a larger extension followed with the famous plan of canals. These canals formed a splendid town-planning element in an artistic as well as in a practical sense. It is monumental and still picturesque. The old Dutchmen knew how to build towns. Along the canals they fixed not only front lines, but back frontage lines too. Amsterdam remained inside the limits of this last extension till 1870. Holland felt the influence of Germany's prosperity after the Franco-German War. The town spread out; but the lack of insight then shown has placed it on the international black list of town extensions. Canals were filled up, bridges lowered, old buildings demolished. At the end of the nineteenth century Dr. Berlage was commissioned to design an extension plan for South Amsterdam. This signified once and for all that town planning was recognised to be not a task for officials, but for architects, and especially architects outside officialdom. A rigorous division into special areas for labourers, middle class, and the wealthy was avoided, and a new architecture arose, free from historical styles. Several gifted young architects are now enthusiastically devoted to the development of a national architectural art, in spite of their individual differences.

A new extension plan has now to be made for the other parts of the town. This is the procedure: The officials will frame a programme including the requirements of traffic, housing, playgrounds, and zoning, and also the maximum number of houses to the acre. Then the architect will come in. A town-planner ought not to elaborate a building plan intended for the next fifty years or more, but he ought to lay down the general lines. The other architects coming after him should design the plans for the building sites and regulate the plan not in two but in three dimensions.

In Amsterdam there is estimated to be a shortage of 20,000 houses. The clearance of slums has ceased, though there are still 15,000 such dwellings to be destroyed. In several tenements two and more families live together. The marriage-rate is increasing, though there are not enough homes for them. The morality of the whole nation is deteriorating because the housing conditions become worse and worse.

In 1901-1902 Holland got its first Housing Act, which was founded on the English Acts. Under that Act it is stipulated that the municipality can lend from the State for direct housebuilding or for building by public utility societies the total amounts necessary. From 1905 to 1918 a total of sixty million gulders was lent; in the next four years the loans were, in millions of gulders—37, 74, 111, and 150. In 1922 it has dropped to 80. These sums must be divided into two parts. One part is repayable in fifty years, and the other is given as a subsidy. How large the subsidy part will be has not yet been decided by the Government. Amsterdam has got in this way nearly 100 million gulders, and has erected nearly 10,000 houses; 8,000 more are in course of erection, and some thousands have been planned. In recent years the private builder can get a subsidy from the Government. Twelve months ago it amounted to £200; it is now £50. But the private builder did not provide houses for labourers. Many hope he will do so, and so put a stop to the need for municipal action.

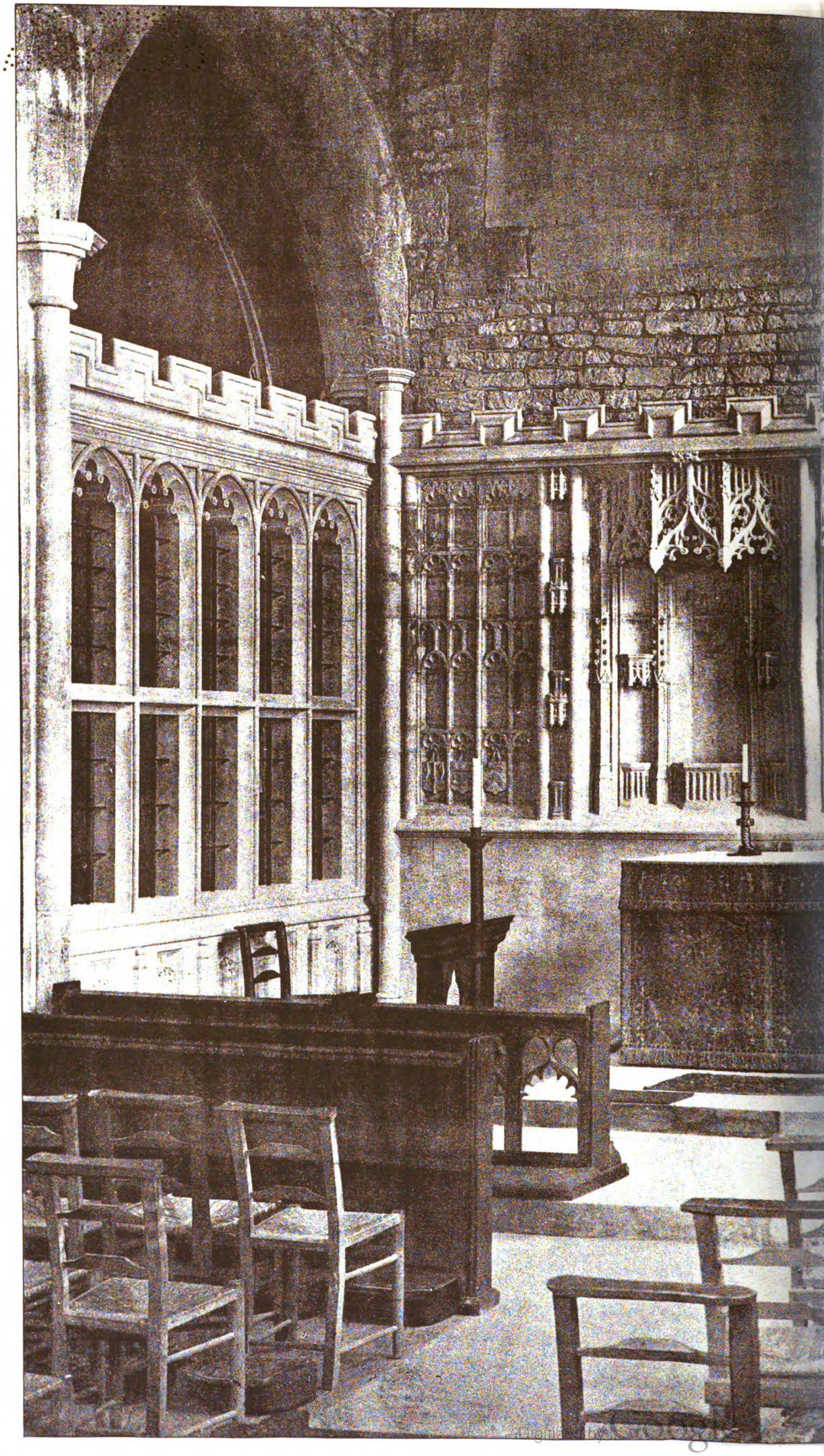
The municipality of Amsterdam has so far housed 4,000 families; 2,000 more dwellings are in course of construction, and plans are ready for bringing the total number up to 10,000 at no very distant date. A special effort has been made to provide for large families. Under these circumstances the question of management becomes very important. Acting on the methods originated in England by Miss Octavia Hill, women managers were appointed at Amsterdam to take charge of the municipal houses and their tenants. There is now a staff of thirteen working under the chief woman manager. Great care is exercised in assigning the new buildings. Some groups of houses are designed expressly for families with five or more children. When families are considered by the managers to be noisy, drunken, and quarrelsome they are removed to houses in one of the special areas provided for them. The work of these women managers is extremely valuable from a social point of view. One result of it is that the total arrears of rent over a year are only about one-half per cent. The public utility societies, whose tenants are the best of the skilled labourers and artisans, do not appoint women managers for their 6,000 houses.

Nearly all the plans for the municipality and the public utility societies are designed by architects outside officialdom. The houses are built by contractors, by direct labour, or by Building Guilds. The municipal department regulates and administers the whole enterprise, economical, technical, and financial. It is not a pleasant task, but it has to be done. Fortunately, the authorities recognise that the solution of the housing question will come not from the jerry-builders and the ungifted, but from the best architectural brains. The best architects are now working with the department and preparing town-planning and housing schemes. In former times the private builder was supreme, and built as cheaply as possible and as badly as possible. But in the days when the public utility societies began their work the municipality ordered they must call in the aid of an architect. The new development of Amsterdam thereupon came in sight. Previous to that time the architect was only concerned with country houses, commercial buildings, hotels, banks, &c. Nowadays they are called upon to solve the new problems.

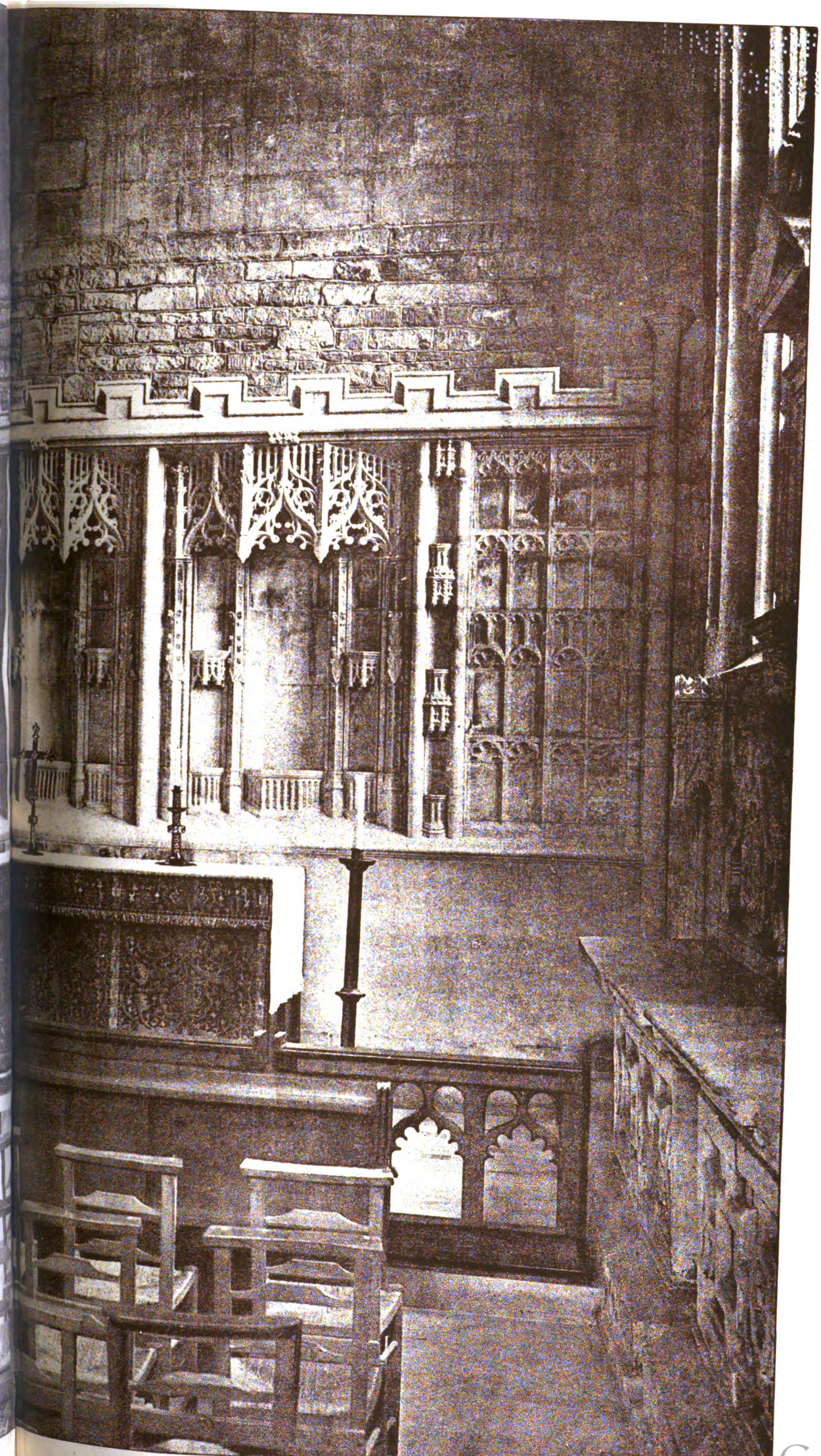
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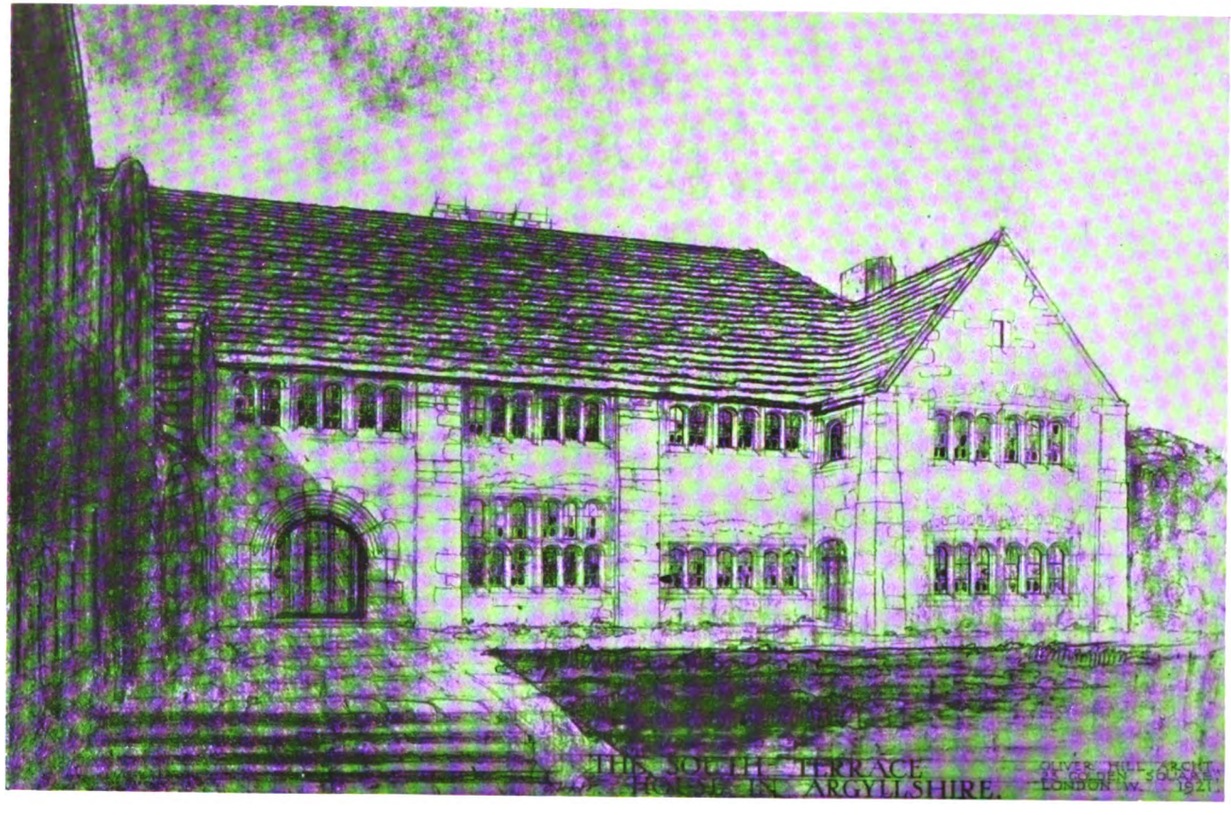
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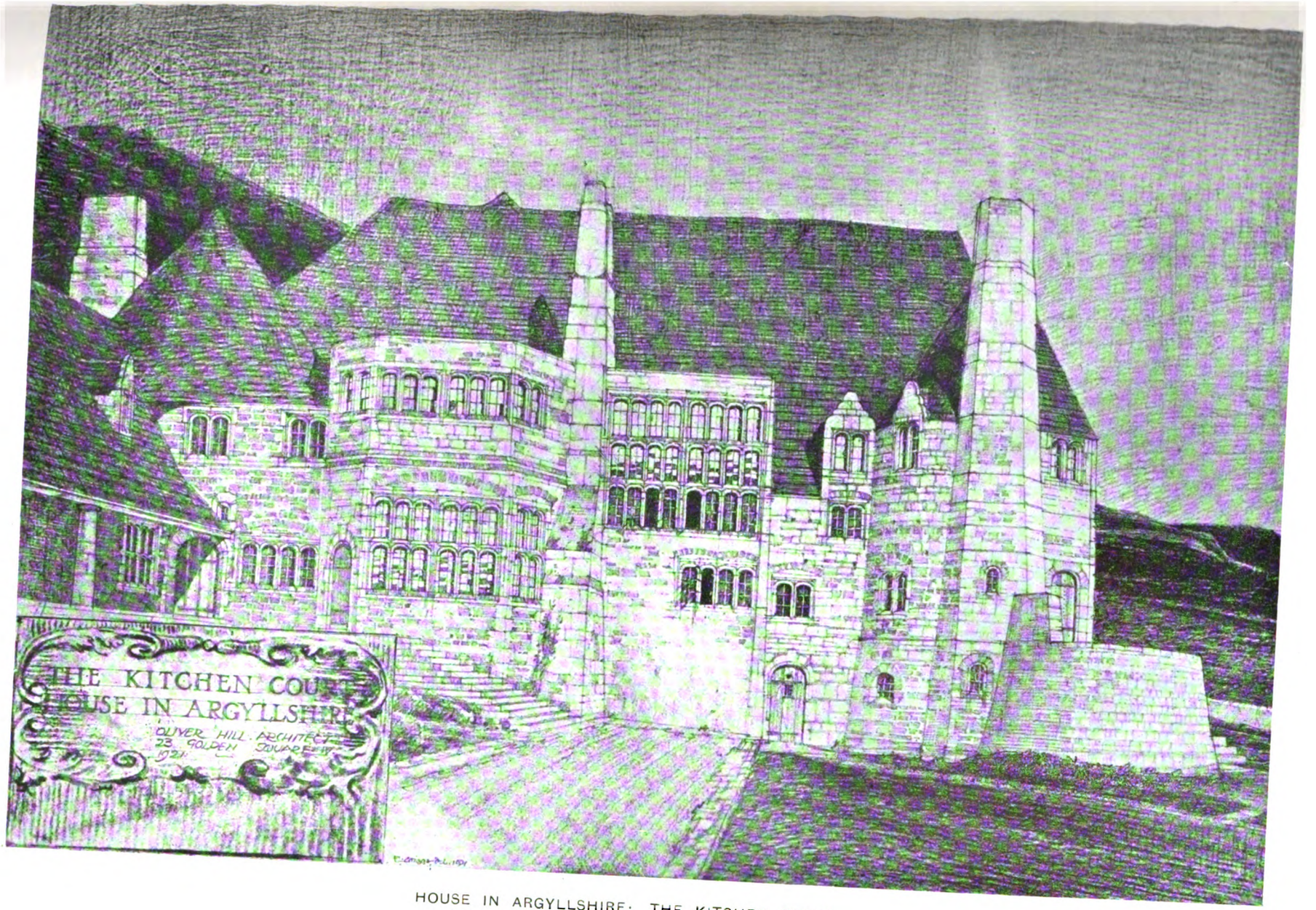
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HOUSE IN ARGYLLSHIRE: THE SOUTH TERRACE.

OLIVER HILL, ARCHITECT.

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HOUSE IN ARGYLLSHIRE: THE KITCHEN COURT.

OLIVER HILL, ARCHITECT.

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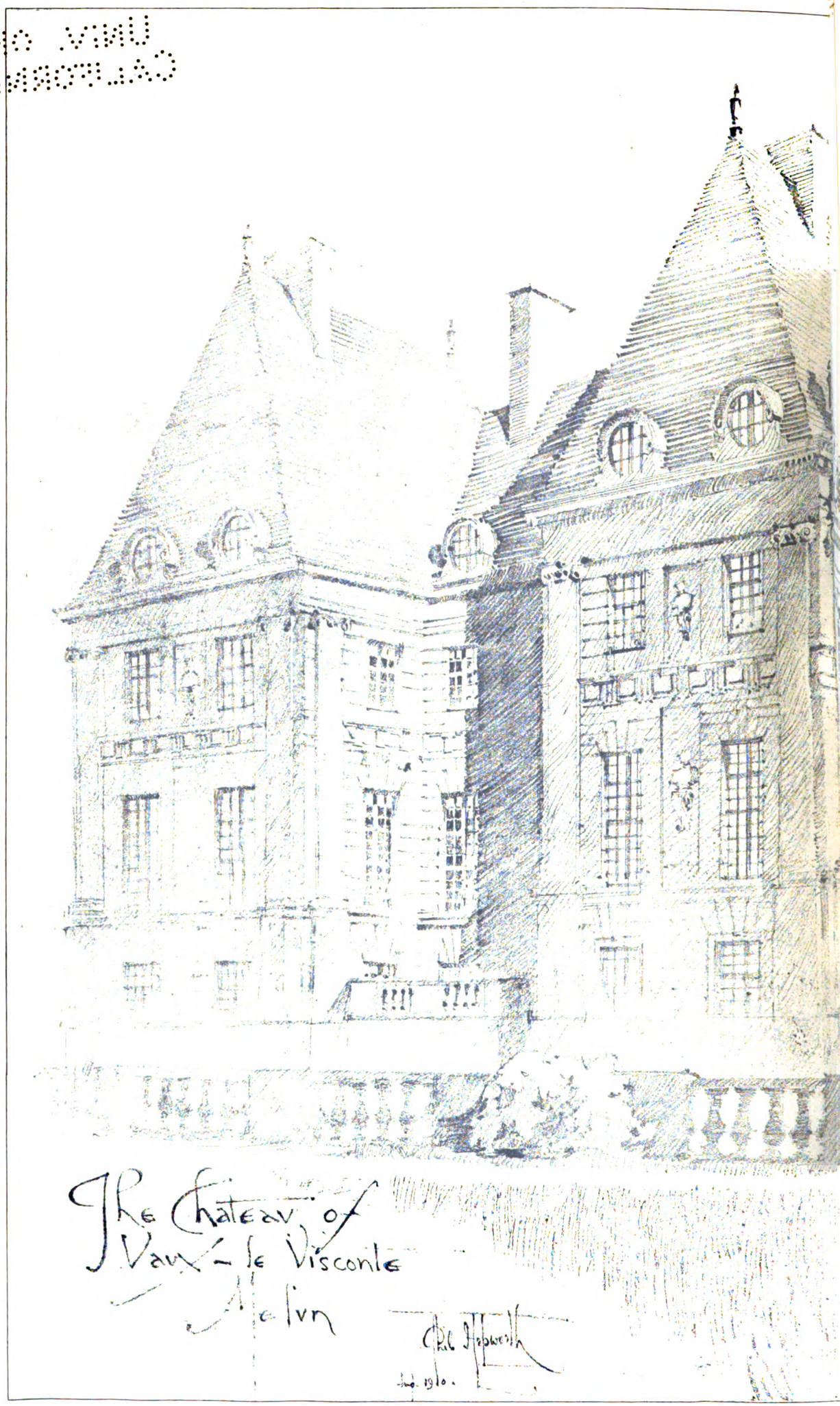
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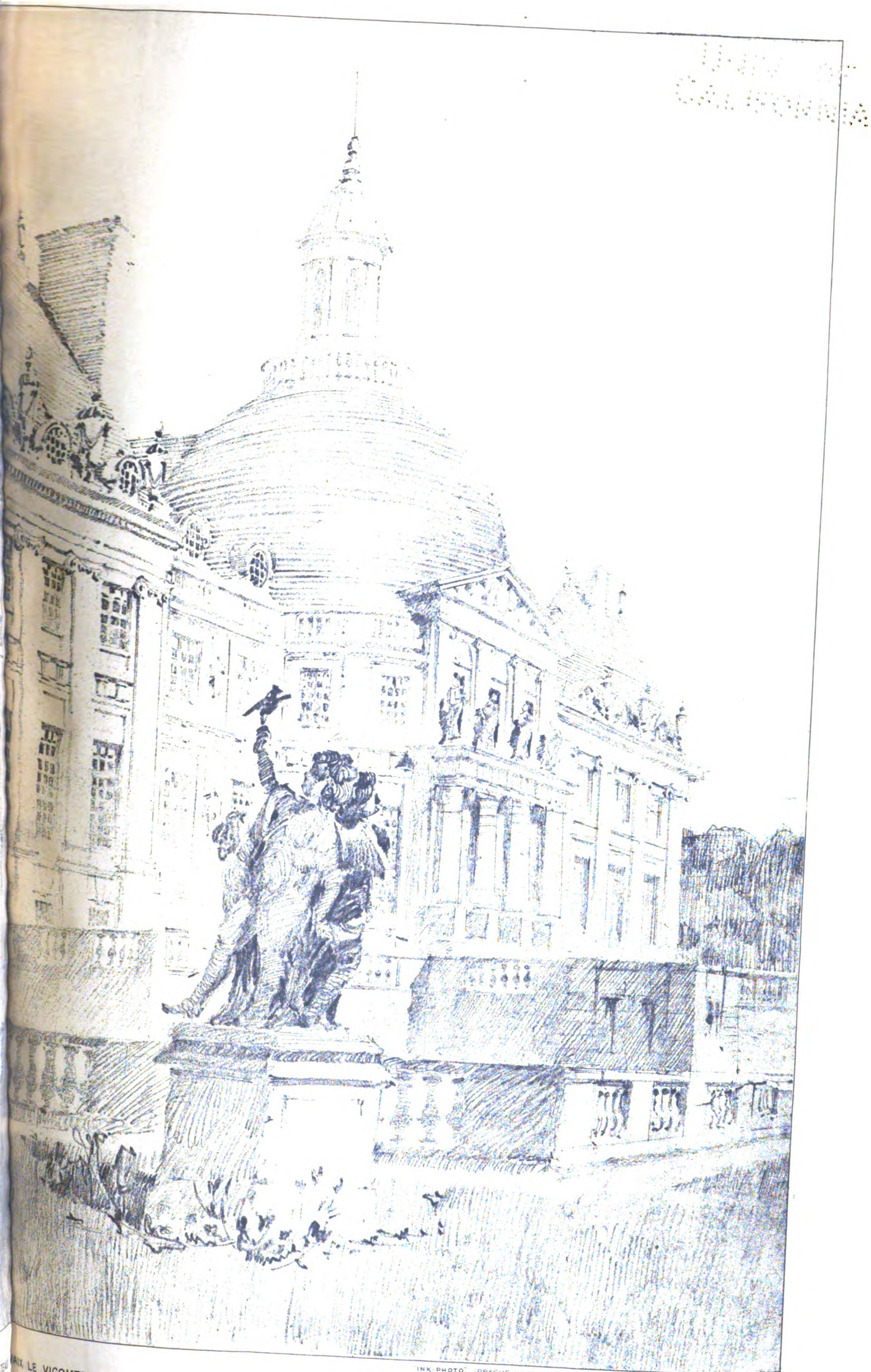
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The Chateau of
Vaux-le Vicomte
Melun

Chas Hosmer Morse
1910.

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The street fronts they designed in the first years were no more than a collection of individual blocks of houses. Their solution of town-planning problems such as street corners and the architectural accents in the streets and squares were all marked by hesitation and lack of confidence. The interest of the population in the question encouraged the architects to give of their best. To come from designing simple houses to a row of houses, and from this to a whole street and then to a whole city, was a long journey. At first it proved very difficult to make the different architects collaborate. Heretofore architects designing adjacent houses or office buildings had showed no desire to try for harmony. That has been changed, and they now work together.

The Director of Housing has the assistance of the Architectural Committee instituted by the municipality. This Committee consists of ten non-official architects appointed by the municipality, and must approve every plan. The members may not make new plans themselves. This latter work is done by one of six or eight architects who collaborate with the Director. In the case of the public utility societies the Director furnishes a list of perhaps ten names, from whom a choice is made, and then the Director nominates a sympathetic leading architect to act as adviser.

Till 1900 the profession in Holland were building in the historical styles—chiefly the Dutch Renaissance. Then ensued a period of chaos, until Dr. Berlage introduced his "rationalism," which regarded a building solely as an object of utility and devoid of joy. This was followed by two other "'isms"—cubism and expressionism. Expressionism in its development of personal thought and individuality may lead to intellectual anarchy, but, at any rate, like all real architecture, it contains in itself the thoughts of the time in which it is made. Therefore it is proposed to have some blocks erected by the adherents of expressionism.

Discussion.

Mr. Raymond Unwin, in proposing a vote of thanks, said he would first of all like to congratulate Mr. Keppler on his English; the audience would rather hear an occasional slip in pronunciation than to have listened to an address in perfect Dutch. The Dutch have a very lowly characteristic in their land and a pushing characteristic in their water. He understood it cost Holland as much to defend herself against the water as most nations spend on their army and navy. That was a very serious strain upon the national resources. It was wonderfully encouraging to see that a country with such enormous difficulties and which must bury so much money under the ground before beginning to build, has the courage to spend money on experimental architecture. Some of the audience might feel the permanence of architecture imposes a limit on the exuberance of its originality. The fact it must remain as a joy or otherwise puts an element of restraint on both ends of the scale, and it was just as improper to make a building excessively mean in appearance as to make it excessively original. The latter must necessarily become somewhat incongruous as days go on. While one may freely experiment in posters and such ephemeral art work, the permanence of a building was a thing they could not afford to neglect. The presence of water had forced the Dutch into town planning, for it would be impracticable to leave each individual owner to develop his building haphazard. It was curious to note that even when the Dutch left their own country, as at Guttenberg in Sweden, they made enormous efforts to develop on the Holland canal basis, despite the fact there was only a small patch of flat land in the town. They must congratulate the lecturer on the very great work his country was doing in the face of grave difficulties. The Dutch set us a very fine example from which we ought to profit largely.

Mr. Stanley Hamp said it had been a most enjoyable lecture, because it had explained a form of architecture with which he had not been quite familiar. Architects in Holland were to be congratulated on having a man in charge of housing so sympathetic as Mr. Keppler, and also an official architect who was able to appreciate and give an opportunity for the young men to express themselves. The world was living in difficult times, and if it did not express itself in its architecture it did in its literature. There was every reason to encourage the young men to express themselves in architecture. As elevations the buildings illustrated on the screen were in many cases most attractive. One must regret the absence of plans to explain the architecture behind the elevations—some of which suggested there was an enormous floor space to which no light could get. If houses were not livable inside there was no excuse for a desirable outside. The scheme for the development of Amsterdam over a huge area was really wonderful. It was a subject for congratulation that a small nation should show how big they were in this subject.

Mr. Ewart G. Culpin assured the audience that wonderful as the buildings might seem on the screen they were far more impressive when seen. The thing which impressed him was not how they were designed, but how the Dutch architects got personality into bricks and mortar and also infuse their spirit into the builders. Probably better brickwork is to be seen at Amsterdam than in any other city in the world. The effect was really remarkable. Architects had had a good chance and been encouraged to do their best. It reminded one of the hopes roused in this country when the Tudor-Walters report came out. Mr. Keppler had incorporated the human touch and brought to his work a love of the people whom he was housing: the human element had been considered right through. The lecturer had omitted to mention the wonderful colour schemes or the internal fittings introduced. In Amsterdam two model rooms had been equipped, so that anyone about to build might study the best fittings for the style of house. That was very useful and was much appreciated. Mr. Keppler was to be congratulated on the work being done in his city the like of which could not be seen elsewhere.

Mr. Manning Robertson expressed a wish to know a little of the financial side of this question. The houses must appear to an English architect as somewhat expensive. In his opinion it was better to have architecture done by official architects than by men who were not architects at all.

Mr. D. B. Niven regretted they had not been shown some of the interiors and plans of the houses. When on a former visit to Holland he went over some of the dwellings he had been struck with the spotless cleanliness both of the rooms and of the children. Many of the old buildings were extremely beautiful. The bricks used were most interesting, there were about two hundred varieties, and were employed in a way we would not dream of doing in this country. Their tiles were of many colours.

Mr. W. G. Newton thought there were three lessons this country might learn from Holland in respect of the housing question. First came the question of the management of these large municipal estates by a well-organised system of women inspectors overlooked by a super-woman—which seemed a very sound solution. Secondly, the large-minded way in which the municipality has brought various architects together and ensured their co-operation. Thirdly, the extraordinary adventuresomeness of the municipality in allowing the young men to express the spirit of the age.

A vote of thanks was passed by acclamation.

Mr. Keppler, in the course of his reply, said the maximum cost of the houses was £800, and they hoped soon to build them at £400 each—despite the fact that bricklayers in Holland were paid more than in this country. The objection to official architects lay in the fact that they got no new ideas between the time of commencement at the age of twenty to that of their retirement at seventy.

Mr. S. W. Gaunt, F.R.I.B.A., diocesan surveyor, is the architect for the restoration of the thirteenth-century church at Petham, near Canterbury, which was recently gutted by fire.

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Competition News.

The Housing Committee of Edinburgh Town Council last week decided to advertise for architects' plans for blocks of working-class houses to be erected on the site of the brewery in the Grassmarket recently acquired by the Corporation.

The Executive Committee of the combined appeal for the hospitals of London invites artists to submit poster designs for use in connection with the appeal campaign, and have set aside the sum of 100 guineas as a prize. Designs must be delivered not later than Monday, May 15. Particulars will be forwarded on application to the Director-General, 19 Berkeley Street.

The R.I.B.A. Competitions Committee have been in negotiation with the promoters of the Newport War Memorial Competition, and the conditions, which will be issued immediately, are now in order. The veto of the Royal Institute of British Architects is accordingly removed, and members are at liberty to take part in the competition.

A meeting of Stirling War Memorial subscribers was held recently to consider the designs submitted for a war memorial. The adjudicator, Mr. James Lochead, Hamilton, gave first place to a pillar design submitted by Mr. George R. Davidson, architect, Barnton Street, Stirling. This design was approved by the meeting, and instructions were given to Mr. Davidson to proceed with the work.

Forthcoming Events.

Saturday, April 29.—Royal Institute of British Architects. Visit to Somerset House. Members meet at the Waterloo Bridge Road Entrance at 3 p.m.

—— Institution of Municipal and County Engineers. Meeting of the Eastern District at Chiswick. 10.30 a.m.

Monday, May 1.—Royal Institute of British Architects. Annual General Meeting at 9 Conduit Street, W. 8 p.m.

Tuesday, May 2.—Institution of Civil Engineers. Extra meeting at Great George Street, Westminster, S.W. Lecture by Sir J. A. F. Aspinall, PP.Inst.C.E., entitled "Some Post-War Problems of Transport." 6 p.m.

Wednesday, May 3.—Royal Archæological Institute. Meeting in the apartments of the Society of Antiquaries, Burlington House, Piccadilly, W. Paper by Mr. A. Hamilton Thompson, M.A., F.S.A., entitled "The Church and College of Cotterstock, Northants." 4.30 p.m.

"The Architect" Fifty Years Ago.

APRIL 27, 1872.

"THE JESUIT STYLE" OF ARCHITECTURE.

SIR,—The writer of "The Recent Wedding" in last week's ARCHITECT says, Italian Renaissance Architecture has been termed "in true historical accuracy the Jesuit Style;" and that "it is well known the higher grades of Roman Catholicism have in recent years always inclined to the Italian or Roman School of Art." He concludes, *à la* Lothair, with a fanciful speculation on the Catholic motive for this alleged ignoring of Mediæval types.

Now, I have no wish to follow him into a divination of motives; but, as an old Catholic reader of THE ARCHITECT, I beg you will permit me to deny altogether *the facts* with which he rashly enters on the task. Here are the true facts:—

Of Renaissance Catholic churches, recently built in England, there are but four of any note, viz.,—S. Peter's, Hatton Wall; S. John of Jerusalem, Ormond Street; S. Joseph's, Highgate; and The Oratory at Brompton; and with these edifices, built in (I suppose) "the Jesuit Style," the Jesuits have no more to do than I, or any other ordinary lay Catholic. They are not Jesuit churches at all. On the other hand, the Mediæval or "Gothic" Catholic churches recently built in England are very numerous and noteworthy; some of them, as the cathedrals of Salford, Southwark, and Plymouth, and the churches at Bath, Hereford, Kensington, Gorton, and Blackpool, are of vast size. The last mentioned is really a Jesuit church; and indeed, of English churches of recent erection, built for any communion whatever, I know of no larger ones than those of the Gesu in Manchester, and S. Walburgh at Preston. These also are, as it happens, Mediæval in style, and of Jesuit build.

Your obedient servant,

O. W.

New Books.

"A Guide to English Gothic Architecture." By Samuel Gardner. (Cambridge University Press.) 16s. net.

This is an attractive book, comprising an architectural glossary and a few notes on mediæval architecture; but consisting for the most part of a fine series of reproductions from photographs taken by the author over a long series of years. These photographs were given to the Harrow School Museum, and attracted the attention of those connected with other schools, which ultimately led to a private handbook being printed and circulated for their use. The production of the book now published was made possible because many blocks had been made for other purposes, and could be utilised. It is chiefly interesting because it shows what an amateur interested in architecture has found especially attractive, and will serve as a good introduction to other works.

"The Art of Drawing in Lead Pencil." By Jasper Salwey, A.R.I.B.A. (B. T. Batsford, Ltd.) 10s. 6d.

We agree with the author of this most attractive and useful book when he states that "there is much more satisfaction to be derived from the mastery of pencil drawing than the partial victory over the difficulties of oil or water-colour painting," and that "the remarkable qualities of pencil work have so far only in a few instances come anywhere near full realisation." We regard the excessive attention now paid by architects to water-colour representation of what can be far more adequately shown in pencil as a misfortune, for in reality pencil drawing rather than ink or colour may be described as being the ideal medium for the representation of architectural form. The book is illustrated with 121 plates, representing every variety of subject, and covers the following subjects: Materials, Elementary Technique, Advanced Technique, The Taking of Rapid Notes, Experimental Sketches, Building up the Finished Drawing, Form, The Suggestion of Colour, Concerning Style, Pencil Artists and their Work, together with an appendix dealing with the reproduction of pencil drawings, and the illustrations show what both artists of the past and those of the present have been able to do without the introduction of colour or of tone other than that afforded by a lead pencil, the author's own drawings being admirable examples of a mastery of delicate tone effects. The book should be very useful to many.

"Everyday Life in the Stone Age." Written and illustrated by Marjorie and C. H. B. Quennell. (B. T. Batsford, Ltd.) 5s. net.

This book is the first of a series intended to cover the prehistoric and historic ages. As we should expect any book dealing with the life of mankind twenty-six thousand years ago must be made up largely of conjecture since the actual fabric of facts known are astonishingly small, consisting of a few imperfect skeletons which could be contained in a small room and a super-abundance of so-called flint implements, many of which have to be surveyed with the eye of faith before we can assume that they were necessarily fashioned by human agency, and a few extraordinarily good outlines of animal forms which are of outstanding interest as the first examples of the graphic arts known. Still, from this material Mr. and Mrs. Quennell have contrived to make an interesting little book which will appeal to many children as strongly as the old legends and folk stories of the past. Geology has always been a study which has an immense fascination for many because the absence of definite scientific data leaves room for an interesting variety of conjectures which no one can definitely contradict. Unless investigation reveals some great *cache* of remains hitherto unknown we may assume that the early history of mankind on this planet will and must remain part of the *terra incognita* which bounds the confines of our knowledge, and is for that reason perhaps a most reasonable field for the exercise of imagination.

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The Building Trades Exhibition at Olympia.—IV.

The concluding seven days of this exhibition began on almost a frivolous note, for on Friday last a reception in the afternoon, a banquet in the evening, and a dance and revel at night followed on each others' heels so quickly as to produce something of a sensation of breathlessness. Perhaps if they had been held on different dates the attendance at each of the three would have been still more representative of the profession and the industry.

At the reception organised by the Architects' Welcome Club, the guests were received by Mr. Paul Waterhouse (President of the Royal Institute of British Architects), Mr. E. J. Sadgrove (President of the Society of Architects), and Mr. W. G. Newton (President of the Architectural Association). During the reception musical selections were played. Among those who attended were:—

Sir Francis Fox, Mrs. Flinders Petrie, Mr. Arthur Keen (Hon. Secretary of the R.I.B.A.), Mr. Edward Warren (Berks, Bucks, and Oxon Architectural Association), Mr. Walter Cave, Mr. A. T. Walmisley, Mr. A. J. Forsdike (past-president of the National Federation of Building Trades Employers), Mr. W. R. Davidge, Mr. H. V. Ashley, Mr. H. Winton Newman, Mr. R. B. Chessum (President of the London Master Builders' Association), Mr. Alan Munby (President of the York and East Yorkshire Society of Architects), Mrs. Munby, Mr. Percy Marks, Mr. S. B. Russell, Mr. T. Raffles Davison, Mr. E. J. Brown (the National Federation of Building Trades Employers), Mr. Francis Hooper, Mr. O. P. Milne, Colonel and Mrs. Levita, and others.

The Banquet did not take place in the Pillars Hall as originally intended, but in the restaurant close to the Addison Road entrance to Olympia. It was preceded by a formal reception in the room on the opposite side of the entrance. The Chairman was Mr. Paul Waterhouse, P.R.I.B.A. Among those present were Monsieur Augustin Rey (Société Centrale des Architects Français), Sir Lawrence Weaver, K.B.E., Hon. A.R.I B.A., and Lady Weaver; Mr. E. J. Sadgrove, F.R.I.B.A. (President of the Society of Architects); Major Harry Barnes, M.P., F.R.I.B.A.; Mr. A. J. Forsdike (Past-President, National Federation of Building Trades' Employers); Mr. Greville Montgomery; Mr. G. Topham Forrest, F.R.I.B.A. (Superintending Architect to the L.C.C.); Mr. R. B. Chessum (President of the London Master Builders' Association); Mr. Arthur Keen (Hon. Secretary, R.I.B.A.); Mr. E. Guy Dawber (Vice-President, R.I.B.A.); Mr. Walter Cave, F.R.I.B.A.; Mr. E. S. Beal (Master of the Worshipful Company of Plumbers); Mr. Lewis Hind; Mr. E. Fiander Etchells (President of the Concrete Institute); Mr. N. Scorgie (President of the Institution of Municipal and County Engineers); Mr. W. R. M. Lamb (Secretary of the Royal Academy); Mr. W. G. Newton, A.R.I.B.A. (President of the Architectural Association); Major C. F. Skipper (Vice-President, the Society of Architects); Mr. H. V. Ashley, F.R.I.B.A.; Mr. Percy B. Tubbs, F.R.I.B.A. (Past-President of the Society of Architects); Mr. R. S. Ayling, F.R.I.B.A.; Mr. L. Sylvester Sullivan, A.R.I.B.A. (Hon. Secretary of the Society of Architects); and Mr. Ian MacAlister (Secretary, R.I.B.A.).

After the loyal toast of "His Majesty the King, patron of the Exhibition," had been duly honoured, Mr. H. Greville Montgomery, in proposing "Architecture and the Building Industry," confessed that the only interest he had in either calling at the moment was in their connection with the Building Exhibition. He would certainly like some information about the £350 house which they were informed was within the range of practical politics. The Chairman was President both of the Exhibition and of the R.I.B.A., and had been described by a distinguished architect as being "nice." Personally, he had never taken part in a more beautiful opening of an exhibition than that by Mr. Waterhouse.

Mr. Paul Waterhouse, in the course of his reply, said he wanted to acknowledge how much they were indebted to Mr. Greville Montgomery for the enormous work which he and his merry men had done at Olympia. They would all wish prosperity to future Building Exhibitions. Architects were now more closely in touch with their friends the builders than they had ever been before. That was all to the good. It was not merely that they met occasionally at dinners. But architects were getting to know builders, and builders were getting to know architects. More and more they were beginning to understand each other. There lay the truest hope of good work. An exhibition such as the one at Olympia was one of the things which helped to illustrate what that friendship meant. Nowadays there was no use for the aloof architect: the architect who in these densely populated islands directs his work from his office. Fraternity with one's fellow-men, whether clients or builders, was essential. Fortunately, architecture was the kind of thing one could talk about in one's own home—an architect's wife had even been known to develop an interest in it! The Building Exhibition was a sign of hope, and the present was the time for looking forward and a time of encouragement. They had with them that night a distinguished friend in M. Augustin Rey, the representative of two great French societies—viz., the Société des Architectes diplomés par le Gouvernement and the Société Centrale des Architectes Français. He hoped M. Rey would take back to Paris the friendly greeting of the Royal Institute of British Architects.

Mr. A. J. Forsdike (Past-President of the National Federation of Building Trades Employers), who also responded to the toast, remarked that the relations between the R.I.B.A. and the builders at the present time was a good one. Personally, he had always been of opinion the two should stand in the very closest relationship. The more they could associate on occasions like the present the better they would get to know one another. During the last few years there had been great changes. Architects, surveyors, and builders had all had very serious difficulties to contend against. Those difficulties were not yet quite brushed away. The building trade suffered from the abnormal cost that had come about from circumstances over which employers had had not very much choice, and which was created by demand and supply. If they would all put their shoulders to the wheel, he believed there was every prospect of the industry coming back to its own. He believed a flourishing time was not very far off. The operatives were now beginning to realise they have to take their share of responsibility for the slump that has taken place. The operatives' leaders were full of good sense, and wanted to do what was best for the future; but they must consider the other side. Builders have to do a great amount of work and to carry a great amount of anxiety.

Mr. Edwin J. Sadgrove, F.R.I.B.A. (President of the Society of Architects) proposed "The Guests."

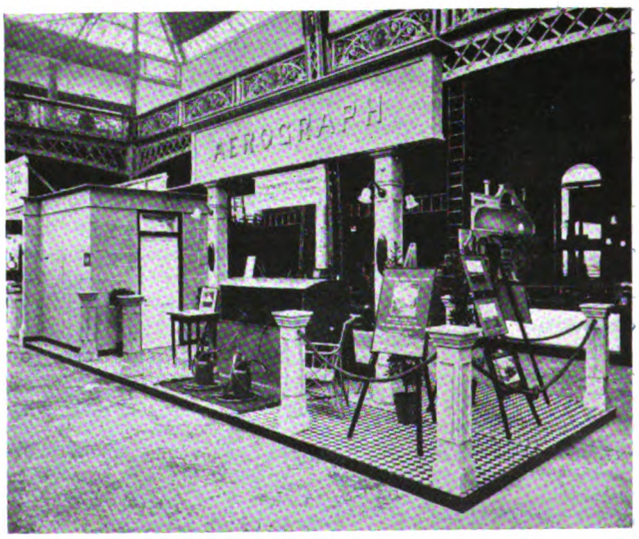
Monsieur Augustin Rey, who responded in French, said he represented both the oldest and the youngest of the French architectural societies. The whole world was confronted with heavy problems. Great Britain was tackling its housing problem with commendable courage, and sweeping away slums in a manner which was a revelation.

Sir Lawrence Weaver, K.B.E., also replied to the toast.

The function was timed to conclude as the procession of revellers made a circuit of the main hall in order to show a "Brighter London." As we have already hinted, the organisers were too pressed for time to be able to devote full attention to the arrangement of each item.

Some of the Stands.

In our previous three issues we have dealt with individual exhibits and made no attempt to group them in any classification. In this final account it seems advisable to adopt this latter method in a few cases where the stands do not seem to call for more detailed notice.



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Albany Forge Wainwright & Waring, Ltd. (London) were one of the two or three firms to concentrate on art-metal work. Their examples of wrought and cast iron, cast lead rainwater heads, steel casements and leaded glass were excellent. A particularly handsome piece was the wrought-iron balcony rail.

Mr. George Blay (New Malden) was happily inspired when he linked up two very unromantic steel tents and with considerable ingenuity converted them into a seductive summer residence which has lost its native nakedness both outside and in. Stand 164, Row H, was undoubtedly one of the popular successes of the show, and must have provided a welcome relief to many lay visitors sorely puzzled by the technicalities of most of the exhibitors



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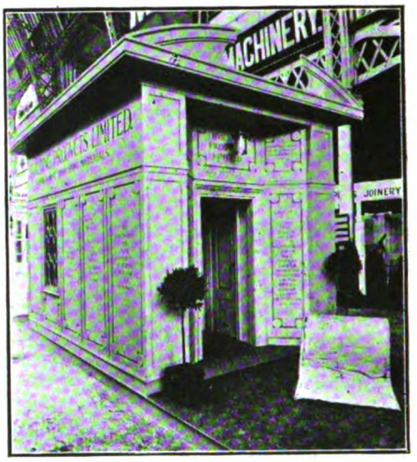
"Magbestic" jointless flooring, manufactured and laid by the British Magnesite Flooring Co. (158-160 City Road, E.C.), was to be seen on the stand of the Waterex Co., Ltd., in the Gallery. This composition is a mixture obtainable in any colour of pure magnesite, cement, wood meal (i.e., very fine-graded sawdust), and asbestos. It was introduced on the market about two years ago, and has already been laid on a large number of floors. The guarantee varies from ten to twenty-one years, according to the class of building. The composition is sent out ready mixed from the factory for laying direct on to concrete, boards, brick, or any solid foundation, and is finished with a smooth trowel surface.

British Reinforced Concrete Engineering Co., Ltd. (Manchester) made an extensive use of photographs on their stand in the Gallery to illustrate the building and roadwork on which the B.R.C. system has been used. In our issue of April 14 we gave a detailed account of its merits as foundation on soft soils (see "Modern Methods in Building Construction," by Mr. Albert Lakeman, p. 266).

Brush manufacturers were represented by Webb & Foulger, Ltd. (Borough High Street, S.E.); the Kent Brush Co., Ltd. (Maidstone); C. A. Peters, Ltd. (Derby); Chadwick & Shapcott, Ltd. (Henry Street, W.C.); and A. Sanderson & Sons, Ltd. (Berners Street, W.).

Builders' joinery was, as usual, to be seen on many stands—several of which have already received mention. Messrs. Jennings, Ltd. (Bristol) had in the annexe a miscellaneous exhibit of a few of their many articles at competitive prices.

This artistically designed stand has attracted very considerable attention from members of the general public, as well as the trade. On the opening days the representatives of Building Products, Ltd., were beseiged with visitors from the Press, Government Offices, musical instrument manufacturers and others, anxious to test the sound-deadening properties of Cabot's Quilt, a practical demonstration of which is the principal object of this exhibit. The



BUILDING PRODUCTS, LTD.

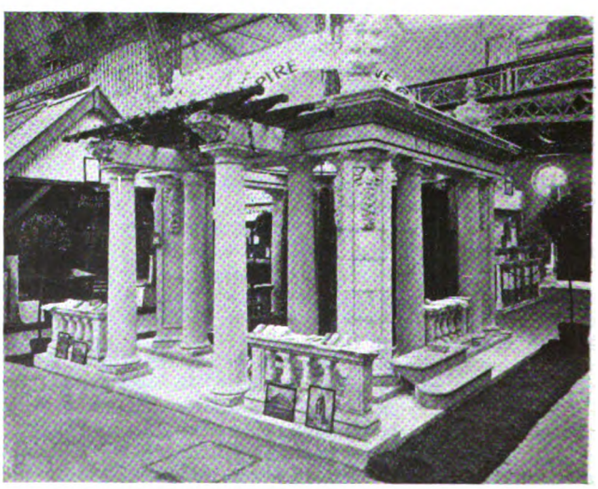
wonderful insulating material is a particular form of sea-weed known as eel-grass, which is cured and formed into a quilt which may be very simply fixed in walls, floors and ceilings.

Messrs. Buss & Elston, Ltd. (61 Mintern Street, Hoxton, N.), again attracted a considerable amount of attention by their exhibit of solid oak panelling at a surprisingly low price. The stand, No. 222, Row L, exemplified four or five different designs of period panelling, with a well-designed inglenook as the central feature. Cost of fixing—one of the expensive items in the introduction of panelling—has been reduced by the firm to a minimum. The system adopted is to frame up at works ready for fixing, which presents no difficulty to a local joiner, as sections are numbered to plan. This is a great economy where work has to be done at a distance from London. Messrs. Buss & Elston are prepared to quote for customers' and architects' plans, or to submit their own designs and carry out the work in its entirety.

Drain-cleaning machines and testing appliances of many kinds were shown by Messrs. Cakebread Robey & Co. on Stand 48, Row C, as well as the "Kennedy" patent bending machine for bending cold tubes, angles, tees, &c. Other exhibitors of drain-clearing and testing apparatus were Messrs. H. Hart (29 Settles Street, E.), E. W. Ward (Handsworth) and John Yates & Co., Ltd. (Aston Manor).

The Climbing Steel Shuttering Co. (Sheffield) have a system for superseding wooden shuttering in the construction of concrete walls which is steadily gaining ground all over the country. It has long ago left the experimental stage, and inquirers can be referred to many contracts on which it has proved a perfect success.

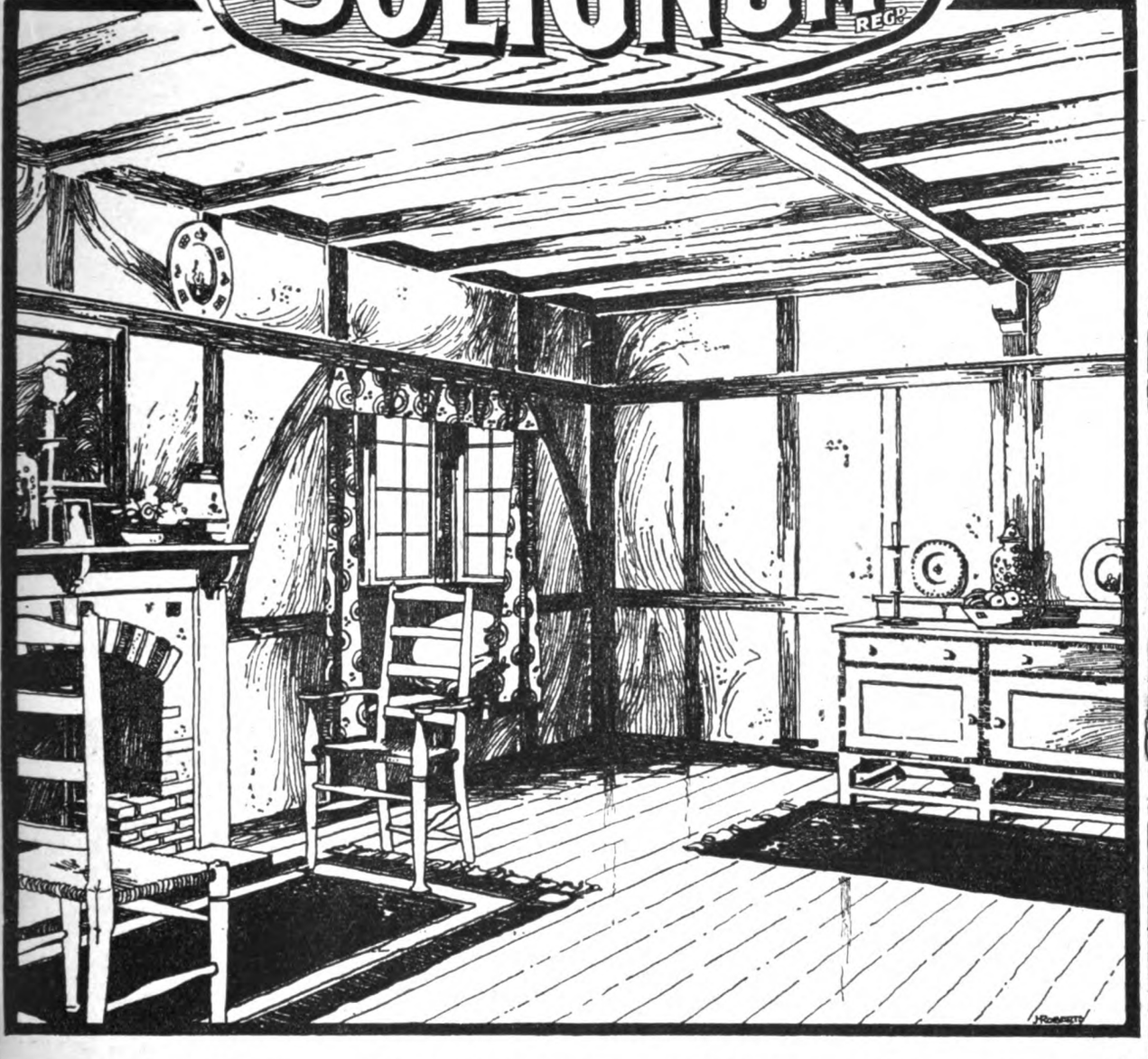
The Croft Granite Brick and Concrete Co., Ltd. (Croft, near Leicester) were represented by their many products, including "Acme" windows made up of artificial stone dressings, flags, sills, bricks, and macadam.



EMPIRE STONE COMPANY, LTD.

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WOOD PRESERVING STAIN

Solignum simply applied cold to UNPAINTED wood penetrates the fibrous cells, destroying and preventing the development of destructive germs. It is a certain preventive of dry rot. Solignum imparts a rich stain to the wood, emphasising its natural grain, with colours soft and pleasing.

It is permanently decorative and preservative; cheaper than paint; lasts longer and costs less to renew.

Use EXTERIOR Solignum for doors and gables, fences, gates, poultry houses (as a preventive of red mite), and outbuildings. Use INTERIOR Solignum for all interior woodwork.

It is the Ideal floor stain as it does not rub off, show scratches, or wear bare; and can be varnished, wax polished, or cedar mopped.

Please write for colour sheet of its 13 colours (Browns, Reds, Greens, Yellow, and Blue), London Depot, 205 High Street, Southwark, London, S.E.1., mentioning "The Architect."

MAJOR & COMPANY LTD

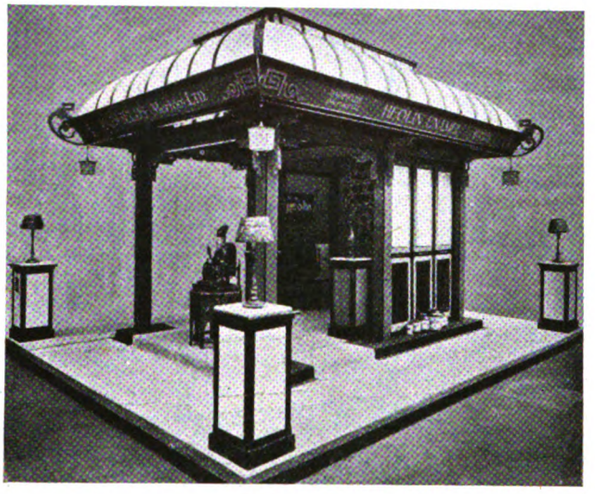
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C. R. Building Constructions, Ltd. (119-120 London Wall, E.C.) exhibited for the first time the "Fearnought" reinforced concrete hollow floor. This is built up of precast channels and hollow tubes, over which the concrete is laid in situ in the shape of a series of tee-beams. No centreing is required, and spans up to 30 ft. are possible.

Ewart & Sons, Ltd. (346-350 Euston Road, N.W.), demonstrated in action the merits of their geysers of many kinds, including the "Califont," which is capable of supplying water to bath, lavatory basin, and sink, and may be fixed in whichever spot is most convenient.

W. H. Gaze & Sons, Ltd. (10 Conduit Street, W.) provided a lighter note in a rather uncompromising trade exhibition by arranging their stand as a reception-room with broad alcove, and decorating it with a cunning mixture of the bizarre and the restful. The colour scheme, the furniture, the lighting fixtures were all made to contribute to the undoubted effectiveness of the *tout ensemble*.

J. Gliksten & Son, Ltd. (Stratford, E.) intend to rise up out of the ashes of their great fire a few months ago stronger than ever. In spite of their heavy losses, they still possess no less than £300,000 worth of stock. As the full claim for compensation has been allowed by the court, the firm will now be able to embark upon an ambitious scheme of reconstruction. Their exhibit included some Austrian oak which had been in stock for twenty years, as well as numerous specimens of English and foreign woods.



HADFIELDS (MERTON), LTD.

G. A. Harvey & Co. (London), Ltd. (Woolwich Road, S.E.) cover a wide field as metal perforators, wire workers and weavers, tank-makers, galvanisers, zinc and copper workers. Their steel shelving, as shown on Stand 17, Row B, is made up of a series of units and interchangeable shelves, and is capable of indefinite expansion. Another exhibit was a miniature model of their revolving screen for stone quarries or coal-mines, which can be built up to any length and in different meshes. Other goods comprised chimney cowls, weather vanes, rainwater goods, tanks, &c.

Messrs. Major & Co., of Hull, and 205 High Street, Boro', S.E. 1, the makers of "Solignum" wood-preserving stain, showed a very attractive exhibit of their speciality. It is hardly necessary to enlarge on the merits of "Solignum," its wide popularity assures one of the excellence of its quality both for its decorative uses and as a preservative and cure for dry-rot and other fungoid growth. The "Interior" quality was shown to advantage on the "Venesta"-lined walls of the stand; it is now made in about twenty different shades. We would remind our readers that Solignumed internal joinery-work and floors should be well rubbed down with dry cloths the day after application. This gives the matt gloss so much admired.



MAJOR AND COMPANY, LTD.



ENTRANCE HALL, MESSRS. HARLAND AND SON'S STAND.



WILLIAM HARLAND AND SON.

The number of lighting exhibits was not so large as might have been expected. The Aerogen Co., Ltd. (30-32 Bolsover Street, W.) demonstrated a petrol air safety gas plant for lighting, cooking, heating, and hot-water supply. Tredegars, Ltd. (7 Brook Street, W.) also show as electrical engineers and contractors for all forms of lighting, heating, and power and electric light fittings.

Four exhibitors come under the head of "Marbles and Mosaics." We have previously noticed the stands of Messrs. Percy C. Webb, Ltd., and Fassio Products, Ltd. Fine displays were also made by Fenning & Co., Ltd. (Hammersmith, W.) and Anselm, Odling & Sons, Ltd. (132 New

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AUSTRALIA HOUSE.
A. Marshall Mackenzie & Son, FF.R.I.B.A.
Architects.

From an original Etching by
Christopher M. Shiner.

REDPATH BROWN & CO. Ltd.

CONSTRUCTIONAL ENGINEERS,

3 LAURENCE POUNTNEY HILL, E.C.4

WORKS AND STOCKYARDS

LONDON	MANCHESTER	EDINBURGH	GLASGOW	BIRMINGHAM	NEWCASTLE-ON-TYNE
Riverside Works, East Greenwich, S.E.	Trafford Park.	St. Andrew Steel Works.	Westburn, Newton. Office: 19 Waterloo St	Office: 47 Temple Row.	Office: Milburn House.

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North Road, N.). The former designed their stand as a complete marble pavilion with mosaic ceiling. The latter firm were not so much concerned with unity, and relied more upon individual features like the fine doorway in Italian Marcato vein for some municipal buildings, the console table in statuary marble, and the pair of golden onyx pedestals.



LECKHAMPTON QUARRIES COMPANY, LTD.

Messrs. Merryweather and Sons, Limited (63 Long Acre, W.C.) may be said to have been represented by every exhibitor, as well as on Stand 39 C. For a "Konus Kemik" fire extinguisher was part of the equipment on the various stalls. This is the company's latest type, and has been approved by the Board of Trade, Home Office, Fire Insurance Companies, &c.

Moule's Patent Earth Closet Company, Limited (Guildford Street, W.C.), were represented by fourteen specimens of their various designs, which embrace the three actions, "Pull-out," "Pull-up," and "Self-Acting" apparatus.

W. T. Nicholson and Clipper Company, Limited (Manchester), included on Stand 187, Row J, two wall ties, the "Warrington" patent wall tie, which has been specified by architects and used by builders for many years past. The "Warrington" bond of iron is made in any length and strength for cavity and solid work.

We have already mentioned some of the manufacturers of paints, varnishes, &c. One of the newcomers was the Plaster Paint, Limited (17 Percy Street, W.), who are the sole concessionaires in the British Isles for Dieppe paint, and plasters and cæmentum. The Dieppe company, we understand, is largely an English one. The proprietors have decided to remove the confusion of the two trade names, Plaster Paint and Dieppe Paint, and to call their manufactures Cæmentum Paint. The Gelesco Paint Company (Brentford), had on their stand in the annexe their "Gelesco" ceiling distempers, which are warranted not to go bad; their "Semesco" washable distempers obtainable in sixty-four tints; "Driol," and other enamels, paints, &c. The British Emaillite Company, Limited (Willesden Junction), repeated this year their offer during the Exhibition to present free £5 National Saving certificates to all purchasers of one "Emaillite" crate, valued at £17 17s. 6d.; their stand included their latest product, a flat wall finish, giving a permanent enamel-like finish at low cost. Thomas Parsons and Sons (315-317 Oxford Street, W.), again make a conspicuous feature of H.M.S. Endelline, that blunt-nosed, man-of-war, dazzling the eye with its show of Parsons' enamels, varnishes, and paints.

Stimex Gas Stove Company, Limited (Balham Hill), showed their patent cooker, which does not have its burners in the oven, but in a chamber, or chambers, at the side, and so enables the bottom to be entirely closed; the "Stimex" combination range has an open gas fire in the position of the usual coal grate, an oven beside it on the new principle, and, if desired, it may be fitted with a circulator: lastly there are various types of "Stimex" circulators.

Wallpapers always lend themselves to effective display. Two interesting stands were those of A. Sanderson and Sons, Limited (552-55 Berners Street, W.), and Heffer, Scott and Company, Limited (56 and 21 Berners Street, W.). The first-named was itself papered in a plain, neutral grey, which made a most excellent background to the other exhibits.

John P. White and Sons, Limited (Bedford), gave up the centre of their stand to three types of their patent flush fire-resisting hospital doors. There was also to be seen two elaborate bench-ends in English oak, carved from the designs of Mr. Cecil Hare for Bedford School Chapel. An English oak garden bench provided welcome support to many visitors.

Wood panelling and plywood made a considerable show in various parts of Olympia. One of the newer developments was the "Wovenboard" of Borst Bros. (Shoreditch, E.), which is a specially prepared wood fibre wall-board veneered on both sides; it can be supplied in all the usual woods, in sizes up to 3 ft. by 16 ft., and is about $\frac{3}{8}$ in. thick. Venesta, Ltd. (1 Great Tower Street, E.C.) made a special feature of their plywood door panels and various designs of period panelling in oak and ash. An interesting exhibit was a door consisting of two large sheets of "Venesta" plywood laid on each side of a framing, a perfectly smooth surface being thus presented. This door, which has been provisionally patented by Messrs. Rippers Ltd., of Castle Headingham, is eminently suited for hospitals, sanatoria, &c. Another firm in this class was the Beaver Board Co., Ltd. (133-6 High Holborn, W.C.), who displayed their pure wood-fibre wall-board in many attractive ways and combinations, including a board to suggest a brick-tiled surface for bathrooms, kitchens, laundries, &c. Y. Goldberg & Sons, Ltd. (Shoreditch, E.) had a display of plywood in a very large assortment of woods and thicknesses: the firm manufacture special cut sizes for all purposes.

Wood-working machinery was a strong section. Messrs. J. Sagar & Co., Ltd., Halifax, brought up the latest improved types of their plant, including a heavy double-geared roller-feed planing and thicknessing machine, a semi-automatic chain-cutter and hollow-chisel mortising and boring machine, their latest four-cutter ball-bearing moulding and planing machine, and a vertical spindle moulding and shaping machine. The latter has an electric motor incorporated, and was the only one of its kind in the show. Other exhibitors were A. Cooksley, M.I.M.E.; Clark's Machine Tool Co., Ltd.; J. A. Victor; Dominion Machinery Co., Ltd.; Haighs (Oldham) Ltd.; Imperial Wood-Working Machinery Co.; C. D. Monninger, Ltd.; and Wadkin & Co.

The Xelite Plaster Co., Ltd. (56 Buckingham Gate, S.W.) showed their artificial stone-facing "Xelstone," which is worked *in situ* for internal or external decoration to reproduce permanently any natural stone. Two obvious occasions for its use are in refacing shabby fronts and for surfacing concrete blocks. The firm's "Xelite" plaster is a slow-setting cement which is popular as an economical substitute for Keene's.

A Church of the Nazarene is to be commenced shortly at Uddingston, N.B.

The death is announced of Mr. G. E. T. Laurence, A.R.I.B.A., of London, the well-known school architect.

The Libraries Committee of the Manchester Corporation is calling a number of societies into conference for the purpose of setting up an organisation to make a regional survey of the city. It is intended to make as complete a collection of data as possible on historical, antiquarian, and social affairs, including photographs and maps. Those interested in the work contemplated are invited to communicate with the Chief Librarian at the Manchester Free Reference Library, Piccadilly.

The following figures show the progress that has been made in State-aided housing schemes in Scotland to March 31, 1922:—Permanent houses completed, 6,408; temporary houses completed, 650; reconstructed houses completed, 89; houses built under the private subsidy schemes, 1,503. In addition, there are 12,863 houses under construction, of which 1,819 are being built by private persons with the aid of the Government subsidy. The total amount paid by the Scottish Board of Health in respect of the 1,503 houses completed under the private subsidy schemes is £352,359 13s. 4d.

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Original Patentees — Lion Brand — Highest Grade Roofings

and PURE BITUMEN DAMPCOURSES

In all the usual wall widths. ARE THE BEST. Widely adopted for Housing Schemes.

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ROOFING, SARKING, SHEATHING, INODOROUS AND HAIR FELTS, FLEXSLATE, ROOFTITE, WEATHERTITE AND MASTIC ROOFINGS, SLAG-BESTOS (McNeill's Patent Slagwool), STYXOL, a permanent Rustproof Bitumen Solution for Iron and Steel Work. LION ROOFING in rolls, 24 yds. by 1 yd.

By Appointment.

MARTYN & Co. Ltd. of Cheltenham.

London: 5 Grafton Street, Bond Street; also Glasgow, Liverpool, Manchester, Newcastle, etc.

SCULPTURE, WOODCARVING, FIBROUS PLASTER, WROUGHT AND CAST IRON, BRONZE WORK, STAINED GLASS, PANELLING, ETC.

Enquiries invited. *Designs and Estimates Free.*

ARCHITECTS for HOUSING SCHEMES should NOTE

THAT THE "**INTEROVEN,**" FITTED WITH OR WITHOUT WROT IRON BOILER, IS CONSIDERABLY LOWER THAN ANY OTHER CONVERTIBLE STOVE IN THE GOVERNMENT SCHEDULE.

WROT IRON BOILER (*not cast iron*, as in other convertible stoves), is easily disconnected without unsetting or unscrewing any part of stove. Flues cleanable without removing oven.

THE ORIGINAL & ONLY GUARANTEED EFFICIENT CONVERTIBLE STOVE

THE DOUBLE OVEN

(Pascall's Patent). **'INTER-OVEN'** *(Regd. Trade Mark).*

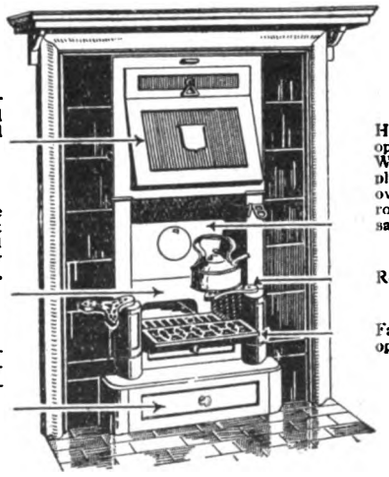
(THE ONE-SCUTTLE-PER-DAY STOVE.)

TWO OVENS

Instantly Convertible from a Cooking Stove to a Sitting-Room Grate.

OVER 50,000 IN USE.

Ideal for Converting Houses into Flats.



The Oven cooks for 8 or 9 persons and will also bake bread and pastry.

Boiler will give ample supply of Hot Bath Water. Will work Cylinder or Tank up to 35 gall. capacity.

Hot Closet or Under-oven for cooking and plate-warming.

Hot-plate raised for open fire, as shown. When cooking, hot-plate is shut down over fire, providing room for several saucepans, etc.

Revolving Trivet.

Fall Bar lowered for open fire.

BATH BOILER

Can be supplied with or without boiler, also without Hot Closet *(under stove)* shown in illustration.

OVER 50,000 IN USE.

Can be fitted in Bed-room Openings 20" wide by 14" deep.

REDUCED PRICES from 195/-. Boiler and Hot Closet under fire extra.
(SPECIAL QUOTATION GIVEN FOR HOUSING SCHEMES.)

Write for List (A. S.):—

THE INTEROVEN STOVE Co. Ltd. 156 Charing Cross Road, London, W.C. 2.

(Also makers of the "BEWTY" Expanding Barless Fire-Fronts for modernising Sitting and Bed-room Grates.)

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South Wales Institute of Architects.

The following is the list of members of Council for the new session:—

President.—Percy Thomas, O.B.E., F.R.I.B.A.

Vice-President.—C. F. Ward, F.R.I.B.A.

Hon. Treasurer.—H. Teather, F.R.I.B.A.

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Members, Western Branch.—C. S. Thomas, F.S.Arc., H. C. Portsmouth, F.S.Arc.; J. H. Jones, F.S.Arc.; J. Cook Rees, F.S.Arc.; Glendinning Moxham, F.R.I.B.A. Associates' Representative.—G. L. Crocker.

Members, Eastern Branch.—C. Page, Lic.R.I.B.A. C. E. Tebbs, A.R.I.B.A.; W. Rosser, M.S.A. Associates' Representative.—W. M. Traylor.

Hon. Secretary.—Ivor P. Jones, A.R.I.B.A.

Drury Lane Theatre.

The re-opening of Drury Lane Theatre on April 20 with the romantic play, "Decameron Nights," constitutes the beginning of a new chapter in the history of the famous playhouse. The interior has been entirely reconstructed, and it now embodies every modern comfort for the audience, even the cheaper parts of the house (pit and gallery) being fitted with richly upholstered armchairs. The proscenium-opening at Drury Lane Theatre has been considerably increased in width, and the fireproof curtain, which is one of the largest in the world and which, it is interesting to recall, saved the auditorium from destruction on the occasion of the fire at the Theatre in April, 1908, has been enlarged and entirely rebuilt by Messrs. Merryweather & Sons, the original designers and manufacturers.

London Assurance Corporation.

Last week the above well-known Assurance Corporation moved into new offices at No. 1 King William Street, E.C., from 7 Royal Exchange.

It is over 200 years since the London Assurance was first incorporated by Royal Charter. For many years its head office has been at No. 7 Royal Exchange, where the marine underwriting section will still remain, but its ever-increasing business and growing influence has necessitated the erection of a new building, to which its head office has now been removed.

The first home of this Corporation was at the sign of "The Rising Sun," in Broad Street. In 1721 they moved to a house in Cornhill, near Birchin Lane; in 1748 to White Lion Yard, off Birchin Lane; and four years later to the south end of Birchin Lane itself. There they remained until 1844, when they settled in the Royal Exchange on its reconstruction after the fire of 1838.

It was in June 1720 that a Royal Charter—the first of its kind—was granted, incorporating Lord Chetwynd and certain other persons into "a body politick and corporate for assurance of ships and goods at sea by the name of the London Assurance." At its birth the prospects of the London Assurance were anything but brilliant. Insurance in all its forms was regarded by the majority of serious people as a breach of the Biblical law against usury. Others recognised it with contempt as a mere form of gambling. And when it had conquered these prejudices, and had proved its morality as well as its utility, it still had to fight ignorance, and to labour for generations in devising the scientific and fair methods by which it now works.

To aggravate its difficulties, the first year of activity was marked by one of the most terrible disasters that have ever befallen commerce, the bursting of the South Sea Bubble here, and of Law's schemes in Paris. Within a period of eight months the shares of the London Assurance were sold at £160 and were unsaleable at any price; and the Government of the day, though itself in sore straits, had to forgive it one-half of a debt of £300,000 due from it for the grant of the Charter.

Nearly two centuries later the London Assurance was called upon to meet the enormous liabilities resulting from the disastrous fire following earthquake shock in San Francisco, involving the Corporation in losses amounting to one million pounds net. The fact that they were able to make settlement in full and without delay and still command the position which they do to-day says much for the *wonderful stability and vitality of this old Institution.*

General.

Mr. W. L. Trant Brown, architect, of Brondesbury, is the new Chairman of Willesden Council.

Primitive Methodist churches are to be erected at Dunstan, near Gateshead, at a cost of £3,500, and at Littleworth, near Spalding, on the site of the present building. A Baptist Church is to be erected in Clayfield Road, Scunthorpe, Lincs.

CORRECTION.—The Inter-oven Stove Co., Ltd., 156 Charing Cross Road, W.C., asks us to correct a printer's error which appeared in their advertisement last week with reference to the price. This was given at the previous reduced figure of 210 shillings, instead of the latest reduced price, which ranges from 195 shillings.

The National Guild of Building Trade Clerks (National Union of Clerks) held their annual conference in London, when they elected Mr. Alfred Dodsworth, of Birkenhead, as their President for the ensuing twelve months. Mr. Dodsworth is well known in Labour and trade-union circles on the Merseyside.

The Rockefeller Foundation, on the recommendation of the Minister of Health, has acquired a site bounded by Gower Street, Keppel Street, and Malet Street, Bloomsbury (at present occupied by the Y.M.C.A. Shakespeare hut), for the proposed School of Hygiene in London. Some weeks ago it was announced that the Rockefeller Foundation had given nearly half-a-million sterling towards the cost of building and equipping a school of hygiene.

The Rector of St. Bartholomew the Great, West Smithfield, is appealing for £4,500 required to bring back to the church the only unrestored part known to exist, six bays of the cloister, including the great entrance arch to the chapter house. Next year will be the 800th anniversary of the foundation of this church by Rahere.

At the last meeting of the New Mill (Huddersfield) Urban Council, yesterday, the architect to the Council applied for the payment of a further instalment of an account amounting to £683 7s. 7d. for services rendered by him in connection with the Council's housing scheme. It was stated that the scheme had not been commenced, and probably never would be proceeded with.

At a last meeting of the Bristol Sanitary Committee Messrs. J. P. Sturge & Sons submitted plans on behalf of the trustees of Redland Chapel Estate for the development of the estate, the plans providing for 140 houses. It was stated that approval was given to this scheme in 1914, but the war put a stop to it. The plans were approved by the Committee.

Instructions have been given by Paisley War Memorial Committee to the architect, Sir Robert Lorimer, A.R.A., Edinburgh, to proceed with the erection of the memorial on a site at the Cross. Prior to coming to a decision, the Committee had, along with Sir Robert Lorimer, inspected an improvised structure representing the actual memorial. This structure had been erected with a view to testing the suitability of the site.

Subject to ratification by the Branch Committees, the Executive Council of the Architects' and Surveyors' Assistants' Professional Union has appointed Mr. John Mitchell, Jnr., as full-time general and organising secretary of the Union. Mr. Mitchell, who is a measurer (quantity surveyor), has for the past two years acted as Honorary Divisional Secretary for Scotland, and has been largely instrumental in establishing the Union so firmly there. He will begin his duties on May 1, 1922.

As a result of a conference between representatives of the South Shields Council and the Ministry of Health on the question of housing, the Ministry have intimated that, in view of the financial position, they cannot sanction the construction of more than 600 houses to meet the needs of South Shields. With regard to the present contract with the Crighton Construction Co., the Council's Housing Committee have decided to give the company notice limiting the number of houses to be erected by the company under the existing contract to 353, on the understanding that the Ministry of Health will undertake to extend their assistance to the whole of the 600 houses and to take responsibility for the payment of the compensation due to the company which the cancellation of the contract involves. The Ministry, it is stated, hold the view that the compensation payable will be more than met by the saving effected in entering into a new contract at the falling prices.

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Architecture at the Royal Academy, 1922.

THE Academy is nothing if not conservative, and this conservatism is typically exemplified in the freezing out of photographic representations of buildings in the Architectural Room. During the War—to the satisfaction of a whole profession whose work is concerned with buildings rather than their representation on paper—photographs were admitted and the exhibition gained in meaning. But now reaction is triumphant, and not a single photograph has found its way into the Architectural Room. It is true that under severe and unreasonable regulations photographs could be sent in, but either these were rejected or else architects have not cared to adhere to rules which are harassing and unreasonable. If the Architectural Room is to be considered as a place to show what buildings are it would be more to the purpose if plans of designs shown were insisted on, since the architectural design in plan governs, or should govern, the elevational and sectional design of buildings. But such an appeal to reason would perhaps spoil the Architectural Room for its main purpose—a quiet place of rest for those tired of looking at pictures.

While a comparatively small reform has been abandoned by the Royal Academy, it is hopeless to expect a more radical and reasonable rearrangement of the galleries. An exhibition of a body supposed to represent those Fine Arts is reduced to one of pictures with a small space allotted to Sculpture and a corner to Architecture. Whether there is such a plethora of first-rate painting that this is really obligatory can best be answered by those who visit the exhibition, but we believe most critics would say that what was worth seeing might be hung in smaller space. Possibly the result is due to the great preponderance of painters among the ranks of the Academicians, but be this as it may the result does not seem to us a satisfactory one. We should like to see architects organising an exhibition of their own and eschewing that of the Academy unless the latter body treated them more liberally, but we do not suppose this is likely to come about, for custom and fashion are both strong influences.

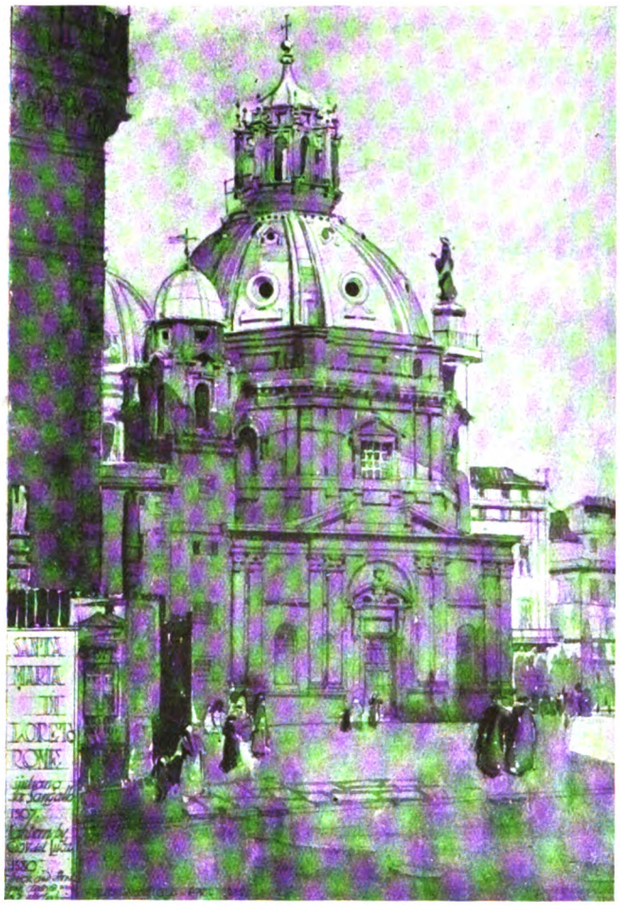
Most critics will be inclined to agree that the exhibition of architectural drawings is a good one, though many who usually exhibit are unrepresented. Sir Ernest George sends nothing, and all will miss Ernest Newton's contributions to an exhibition in which his work strengthened the national claim to pre-eminence in domestic design. Messrs. Niven and Wigglesworth, Mr. Robert Atkinson and others we might mention are not represented. On the other hand, a large proportion of the total wall-space is taken up by Sir Edwin Lutyens's representations of parts of his Delhi scheme, which we illustrate this week. It will suffice to say of them that all are characteristic of the architect, and are shown in admirable water-colour drawings, but we would suggest that the whole scheme for Imperial Delhi would be better understood and appreciated if it were shown as a model, which would enable us to grasp the comparative relation of the various buildings better. Indian architecture, or rather British design for Eastern lands, occupies a large part of this year's exhibition, for besides Sir Edwin's work we have some admirable quiet and dignified designs by Mr. Robert T. Russell, Nos. 1188 and 1198 showing the gazetted officers' quarters and 1196 the hostels for legislative councillors. Near these is a fine group of designs by Major P. H. Keys, of which No. 1189 is the new Post Office and Club at Singapore; No. 1191 is the Sailors' Home, and 1194 the proposed new medical school, both in the same city. All are examples of well-composed vigorous classical design which reflect credit on the author, who is the architect to the Post Office (P.W.D.). Had official architecture throughout the East reached this standard we should have had little to take exception to. The recent competition for the Bengal Council Chamber is illustrated by several designs, of which 1138 is by P. C. Boddy and J. A. Dempster, 1165 by Massy, Morgan, Armstrong, and Dawson, a good piece of classic design shown in a strong water-colour drawing, and 1171 by James H. Sellers, a design which is typically Eastern. It is unfortunate that this competition should have resulted in the choice of a thoroughly uninteresting and commonplace design, for we may say that all the designs we have alluded to are more pleasing architectural compositions. The group also includes a design for the proposed station buildings for the Bombay, Baroda, and Central Indian Railway Co., by Mr. Claud B. Reid, and a good scheme for business premises in Calcutta by Mr. Austen Hall (1192).

But the finest and most outstanding feature of the year's work is Sir Robert Lorimer's Paisley War Memorial (1263) shown by a model to 1-in. scale. The memorial is evidently to be situated on a sloping site and the terrace round it is entered on the highest side. A very simple and dignified pedestal is surmounted by a bronze group of soldiers in modern uniform surrounding a knight seated on a charger, the whole, we suppose, typifying chivalry in modern warfare. This group is the work of Mrs. Meredith-Williams, and should go far to prove that we have among us sculptors who can do work equalling any which has been done in past ages. If the fulfilment of the actual work is equal to the promise shown in the model, the result should be the finest combination of architecture and sculpture which has been produced in our country. The group is placed across, and not on, the axial line of the monument reasonably enough, as, although it groups well from every point of view, the sides convey a stronger impression of force and vitality than the front or back view can.

There is nothing in the Architectural room or in the Sculpture galleries which can be considered as being in the same category of excellence as this design, which has the refinement and definite æsthetic force which is marked in Greek art. The competitive design for the same memorial, by Mr. Theodore Fyfe (1262), in conjunction with Mr. Gilbert Bayes as sculptor, is good, but cannot be compared with the mastery shown in Sir Robert Lorimer's design. Another good monument is that of the R.A.F. Memorial, by Sir Reginald Blomfield, also shown as a model (1264 and 1265). This, with its steps and well-designed pedestal with the terminal eagle, should be appropriate to its position and setting.

Dealing with some of the other exhibits in the order in which they occur, 1127 shows a Memorial Tower for the Royal Northern Hospital, by Messrs. Adams & Holden, a well-proportioned mass distinguished by its austere simplicity and deliberate avoidance of moulded forms. Mr. H. Poulter's "Old Walls, Camberley," is a delightful house shown by a beautiful drawing. The second premiated design for Blackpool War Memorial (1128), by H. St. John Harrison, is well proportioned and simple, the New Almshouses for the Butchers' Charitable Institution (1130), by Mr. W. H. Ansell, shows a quadrangular arrangement of quiet Renaissance type marred by defective design of the entrance features. Messrs. Cowles-Voysey & Morgan

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STA. MARIA DI LORETO, ROME.
Sketch by the late ALEC HORSNELL.

illustrate their winning design for the Hastings Music Pavilion (1132), a good example of the prevalent design of the day, but as a pure piece of design apart from plan we prefer Messrs. Brownrigg & Hiscock's scheme shown in 1186. Extremes are often sharply contrasted, as Mr. Cowles-Voysey's design for a house at Letchworth (1170) shows. We cannot imagine anyone ever becoming attached to such a cold and academic composition or anything further removed from Mr. Voysey's father's homely type of design. Perhaps father and son devote too much attention to the extreme ends of the architectural scale instead of using the middle notes. Messrs. E. G. Allen & Partners in 1134 show a good group of cottages for the Merton and Morden District Council.

The Ramsgate Garden Scheme of Sir John Burnet & Partners (1135) is quaint, especially in its old-fashioned rendering reminiscent of the pencil drawings of a century ago. Messrs. Rowntree's Portico of the West China University is worthy of the interesting design we have already illustrated. A Collapsible Tube Factory at Southall (1140), by Messrs. Wallis, Gilbert & Partners, will please architectural purists who condemn the unessential in design and dogmatise about the function of use. "St. Leonard's," Nazeing, Essex, (1141) is a delicate and delightfully designed piece of Georgian shown in an unusually good drawing. Messrs Hoare & Wheeler's Church at Jesmond (1146) is a good design of traditional type. The colour and decoration of the New Masonic Temple at the Criterion Restaurant (1147), by George Murray, is shown in a very clever drawing by Mr. J. J. Jones.

The War Memorial, St. Mary's Parish Church, Nottingham (1148), by Mr. Cecil Hare, is extremely effective; the juxtaposition of steps and cross gives the design its fullest effect.

The entrance to Sevenoaks Memorial Hospital, by Messrs. W. A. Pite, Son & Fairweather, is an interesting and well-composed piece of design. Mr. Pite usually contrives to show that a Renaissance treatment does not involve an absence of interest, a truth so strongly emphasised in Wren's design. Mr. Guy Dawber sends the Loggia at Boveridge Park, Dorset (1151), a pleasant piece of design, in which we should have preferred the tie-rods eliminated, and the New Foord Museum at Rochester (1249), another typical design. In 1153 Mr. Andrew Prentice shows a proposed house in Gloucestershire, which forms a very picturesque mass of gables and chimneys. Mr. Oliver Hill's Entrance to a Chinese House (1155) is delightful both as a drawing and design. The New Chapel at Westminster College, by Messrs. Hare and Lisle (1156), is in keeping with the very simple Tudor design of which it forms a part. Mr. Briant Poulter's Two Houses at Westminster (1157) are of a quietly designed Georgian character in keeping with their environment. Sir Aston Webb & Son send two small drawings, of which 1159 is the Home of Rest, Whiteley Village, and 1164 the Evelyn Nursing Home, Cambridge. The last is a convex-fronted building with cornice, flat roof and mullioned windows, and both are very characteristic of the type of domestic design which Sir Aston has made familiar to us. Sir John Burnet and Partners send a fine pencil drawing of Adelaide House (1161), in which the effect of overwhelming mass is cleverly conveyed. Much interest will be excited by Messrs. Hall's Tudor House, Argyll Place (1162), which raises several questions on which there will be a division of opinion. Is it suitable to build a town building in half-timber to-day? We believe that most architects would consider it an anachronism except in a town like Chester, where a large proportion of the existing buildings are timbered. However, in this case it is more than probable that the type selected was the result of a client's wishes, and in such a case the only question is the quality and character of the design. Here again there is another difficulty. Most of our old timber buildings are low in



VILLA JULIA, ROME.
Sketch by the late ALEC HORSNELL.

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THE BIGALLO LOGGIA, FLORENCE.
Sketch by the late ALEC HORSNELL.

height and small in scale, while such a building as Tudor House is comparatively high and large in scale. For this reason we think the architects have had a difficult, if not impossible, problem, for we should be inclined to say that no skill could succeed in conveying the desired effect. We are inclined to look upon this as a difficult problem set by a client, to which there is no satisfactory solution, and the question remains whether, in the interests of the modern town, a client should be free to set such problems to his architect. Our point would be obvious were drawings of Staple Inn and Tudor House placed side by side.

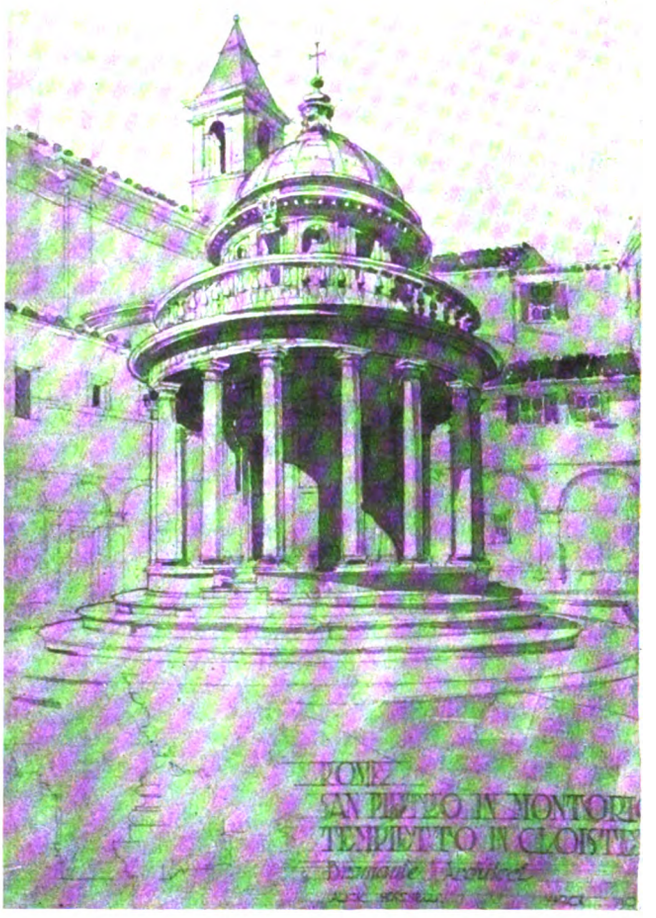
In 1166 Clyde Young has designed a War Memorial in the time-honoured form of a Corinthian column. The East Midlands University at Nottingham, by Mr. Morley Horder (1169), is a well-composed design shown in an unpleasantly coloured and rendered drawing. The Kingsway entrance to Bush House, Aldwych, Messrs. Helmle and Corbett (1172), is shown in a large drawing by Mr. Raffles-Davison. We regret the introduction of semi-Greek detail in a building which we understood was to be designed in general keeping with Somerset House. We have sometimes wished that a knowledge of Greek detail was not so widely spread, as it has become a snare to many designers. 1173 is a first study for the Central Railway Station at Buenos Ayres by Mr. Arnold Mitchell—a large scheme sketchily suggested, but which promises well.

Lloyds Bank, Leicester Square, by Mr. Edward Maufe (1179), is a quiet and pleasing ground floor apparently inserted in some existing building.

A group of houses with central service in Sussex (1180), by Mr. Crickmer, shows a very pleasing design, with a small sketch plan attached, but so small that its details, which would be of great interest, cannot be followed.

Mr. Gilbert Scott and Mr. A. Gilbert Scott disappoint us in what they send this year. Their two War Memorials —that of Beaumont College (1181), and their design for a Naval Monument (1203)—both conceived in a Neo-Grec, or is it a Neo-Grec-Germanic, type of design? seem eccentric, wanting in dignity, and in meaning; we feel that Mr. Scott has wandered after strange gods unnecessarily. In 1206 the proposed War Memorial Chapel at Charterhouse is shown, but only in an external view. The University College Institute of Medical Sciences (1182), by Mr. Frederick Simpson, belongs to the sad and starved type of design which in certain circles is regarded as the last word in truth. Mr. Waterhouse, in the New Buildings for the National Provincial & Union Bank of England (1184), has produced both a picturesque group in a confined and irregular space in the heart of the City. "The Social Centre, Blackpool Park," by Messrs. Thomas Mawson & Sons, is an extensive scheme of the usual "town-planning type," which more often remains on paper than finds fulfilment in bricks and mortar. In 1199 Messrs. Adshead and Ramsey have shown a scheme for municipal buildings and shops at Tilbury which promises well. Mr. Burke Downing is not at his best in his design for Beddington Church, which is a little dull. Messrs. Morley Horder & Briant Poulter, in 1204, illustrate what appears to be an interesting addition to Nettlestead Place, which is presumably an old building. In 1205 Mr. Henry Hyams shows an Exeter restaurant which apparently is carried out in a style reminiscent of the work of Burges. The hostel at Ypres for the Ypres League, by Messrs. Nicholas and Dixon-Spain, is a very good essay in Flemish design.

In 1211 Mr. Stanley Peach gives a restoration of Solomon's Temple, which must be the result of much research, and is far more interesting and convincing than most problematical restorations are. Professor Beresford Pite is represented by the City of Canterbury War Memorial, which takes the form of a richly sculptured Gothic cross shown in a clever pen-and-ink drawing. Nothing could be more harmonious or in better keeping with its surroundings in one of the oldest of our historic towns. Mr. Curtis Green sends two drawings: 1145 representing new premises, Duke Street, Piccadilly, which



THE TEMPIETTO SAN PIETRO IN MONTORIO, ROME.
Sketch by the late ALEC HORSNELL.

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is an admirable example of Renaissance design, and 1218, which shows some city offices and is somewhat frigid in its accentuated correctness of type.

The Government Buildings, Ottawa, Canada, by J. A. Minty and the late A. H. Hodge, is a clever drawing, showing a most effective classical design surmounting the bluff which borders the rivers. This is remarkable for possessing those romantic and picturesque suggestions which we usually associate with Gothic design. A New Office and Factory by Mr. T. H. Burditt is a fine and dignified mass of simple character, and in 1232, additions to Tullich Lodge, Mr. Vincent Harris shows he has understood and studied the character of Scotch design. Mr. Sydney Castle's "Cottages at Pulborough, Sussex" (1235), are a good and clever adaptation founded on traditional design.

Among the remaining drawings we may mention the premiated design for High Court and Public Offices at Karachi by E. B. Hoare (1253), which is good if somewhat uninteresting in its character; a good block of new offices in St .Mary Axe by Mr. Edwin Cooper (1256); an interesting house at Worcester Park by Mr. Horace Field (1257); a curious essay in design by Mr. Goodhart-Rendel is a proposed house at Aurland, Norway; and Viola Square, Hammersmith, by Messrs. Hare and Lisle, which forms part of the Hammersmith housing scheme.

We cannot mention all the drawings of note in a general survey, but can only say that the exhibition as a whole contains little that has not some merit and perhaps not very much which can be considered as of exceptional outstanding character.

Illustrations.

IMPERIAL DELHI. Sir Edwin L. Lutyens, R.A., Architect.

Notes and Comments.

A New Housing Proposal.

The prospective candidate for Sparkbrook, Birmingham, has put forward a new housing scheme, involving the compulsory purchase of untenanted land within a central radius at its rateable value. It is then suggested that the Government should borrow a quarter of a million from the banks, which are described as "bursting with money," at three and a-half per cent., which at an average cost of £350 a house would build 500,000 houses, and these houses when constructed should be sold to tenants who would repay the principal at the rate of 5s. a week, ignoring the interest. There are several pretty little points about this new attempt to pick the taxpayer's pocket. Why it should be assumed that the Government can borrow at three and a-half per cent. with a bank rate at four per cent. we do not know. Why it should be assumed that houses can be built at £350 because of one exceptional case we do not know, and why the purchasers should not pay principal and interest we also do not know. It is a beautiful scheme, and we have no doubt a useful one for electioneering purposes, but the French experiment in self-help, of which we gave details recently, is more to our taste.

Mr. Stephen Leacock and Oxford.

It is perhaps fortunate that Mr. Stephen Leacock is an American citizen, otherwise the students at Oxford might lay violent hands on him as a heretic, for he has scant respect for the mediæval inconveniences of an old University. We confess to a lurking and partial sympathy for Mr. Leacock's views, as in other matters we have seen the evil effect of rampant conservatism, which in building matters sometimes prepares the way for revolutions which we all regret. Many of the old City Halls are a conglomerate mass of interesting and poor architecture, often spoiled by injudicious additions and demolitions in the dark days of last century; there is often room for judicious replanning and alteration, which would give greater value to the work which is worth preserving, and greater commercial revenue to the Companies —Mercers' Hall is a case in point. It has old portions which are interesting and worthy of careful and intelligent preservation; and inconvenient and badly-arranged additions, the removal of which would pay as a business proposition, yet the conservatism of the Company is such that nothing is done. To a smaller extent this is true of both Oxford and Cambridge, where an intelligent and clever scheme based on reasonable lines might often add to the effect of what is best. Without attempting to rebuild, much can be done with old buildings which are so often left severely alone until their entire removal seems the only feasible thing. Still, as we have said, Mr. Leacock is able to say what would not be safe for an Englishman to suggest!

Flats which are Kept Empty.

A curious position seems to have arisen in connection with some workmen's flats at Hampstead, which, in spite of long waiting lists of would-be tenants, are kept empty because the contractors have finished their contracts before time, and the access roads to them are littered up by débris. Mr. William Woodward considers this a scandal and as showing the outcome of the Borough Council's peculiar mentality, and so it seems to us. Public bodies, and private individuals alike, often seem to think there is something indecent in paying a bonus to a contractor and something praiseworthy in exacting a penalty from him; but in this case, where there is a shortage of accommodation, it is evident that the Borough Council are in duty bound to make an effort to obtain possession, even if they paid as much in bonuses as they would secure in rents for the period. They might, indeed, make a good bargain and offer a little less than would be covered by the rents received, but in any case it is one of the stupidest positions we have ever heard of, and a solution of the difficulty should not take an hour to effect.

The Veteran of an Architect's Office.

It is always a pleasure to hear of any event which emphasises the close bond which often subsists between the members of an architect's staff, and we are glad to record that Mr. Robert Ardley has completed fifty years of service in Mr. Waterhouse's office, and that the event has been duly honoured. Mr. Ardley, who, we understand, has filled no definite position because he has been indispensable in many, has served under Alfred Waterhouse as well as Mr. Paul Waterhouse and his son, and may in some future period of leisure be able to give some reminiscences of a family which has been closely connected with the architectural history of half a century and has been in the forefront of service whenever the profession has needed aid and guidance. Many of us were privileged to know Alfred Waterhouse, who, more than any of his enterprises raised the profession in the public's estimation, and more of us know how worthily Mr. Paul Waterhouse has followed in his footsteps, while he has also attained an eminence which is individual to himself as a most graceful and effective speaker. Such men know where honour is due, and all who do not know him personally must be sure that Mr. Ardley deserves the esteem in which he is held, and it is pleasant to be reminded that in the troubles of business may be founded the warmest and closest of ties which bind man to man.

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Painting at the Royal Academy.

By Selwyn Brinton, M.A.

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The first question which meets us with regard to this exhibition is the annual and inevitable question, Is it a good Academy? I consider this may be answered in the affirmative as far as the paintings are concerned: perhaps still more so with reference to the architecture, which I do not touch here, and less so with regard to the sculpture, which I propose to take this year in a separate notice.

The most practical and convenient method of notice I still consider is what I have used on previous occasions in these columns, to take the rooms in order as any visitor would, noting the paintings of interest as we come to them; and in this way we begin in Gallery I. with three pictures, each excellent of its kind and characteristic of the artist, "Calling to the Valley," by H. La Thangue, R.A.; "The Giudecca, Venice," by Moffat Lindner; and "A Gravel Pit," by Oliver Hall, A. But the interest in this room centres in John Sargent's fine portrait of the Countess of Rocksavage, standing upright and robed in black: we shall come upon the same sitter in a very contrasting portrait of her in Gallery III., but in this first room I wish to point out a "Portrait" of a lady by George Henry, R.A., very clean, direct, and fresh in colour. I consider that this artist, who has an admirable landscape ("Spring") in Gallery III., with Arnesby Brown, R.A., whose "Yacht Race" is in this first room, and Philip Connard, A., whose "Summer" hangs near it, come forward especially in this year's Academy. In the same room Harry Morley, in his "Nurture of the Infant Jupiter," gives us the impression at first sight of a primitive painting of the "Holy Family," till we find it is only the juvenile Jove who is being offered a cup of goat's milk by his peasant nurse, and is expressing his opinion of it vociferously.

In Gallery II. "Adventure," a nude male figure, blindfolded, with a sword, is strongly painted, but seems to lack just the imaginative touch required, and "The Shulamite," by Maurice Greiffenhagen, R.A. Elect, is clever illustration and no more, while it might be difficult to say more than this of the large canvas of Princess Mary's wedding by Richard Jack, R.A. In his portrait group here Mr. A. J. Munnings, A., is scarcely at his best for the landscape background, some of it beautifully painted, seems to overwhelm the scattered figures of the lady in white, her children, and the dogs. I prefer to pass on to Gallery III., where there is work of the first importance in this Academy.

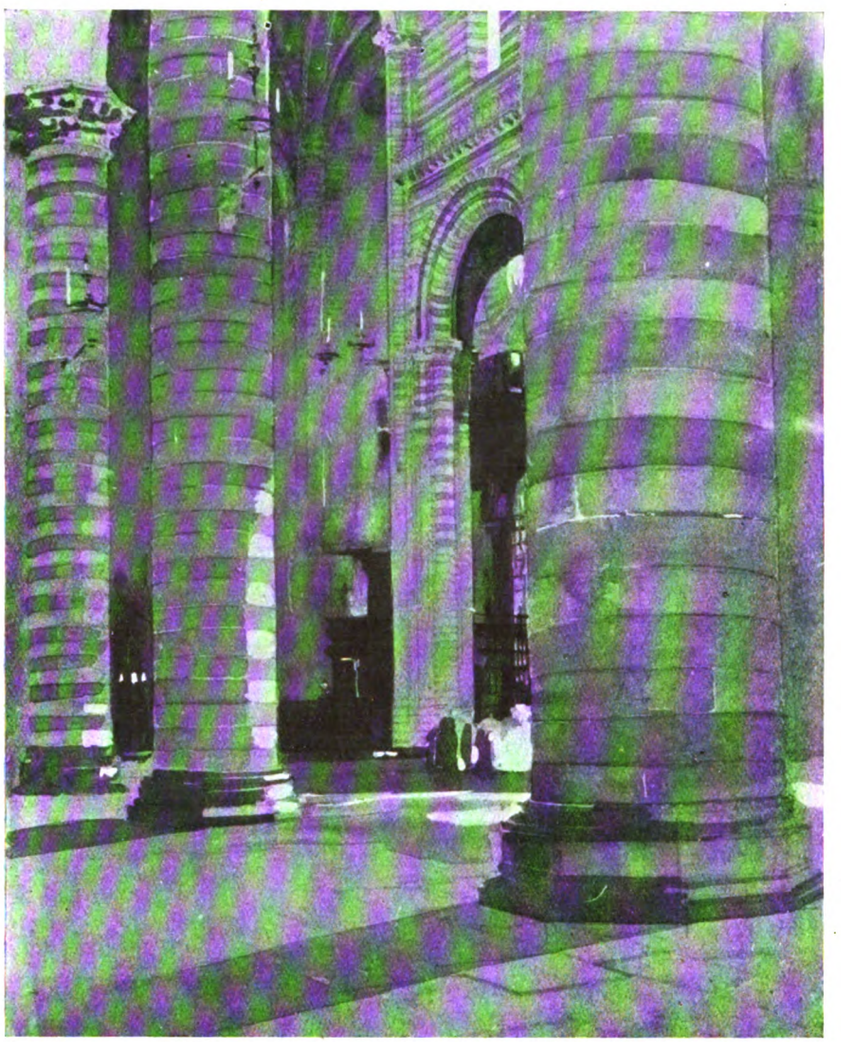
Immediately we enter this large room we find ourselves in front of the great canvas by John S. Sargent, R.A., depicting "Some General Officers of the Great War," which challenges our criticism: and I may say at once, although for many years an admirer of this artist's genius, that my verdict is not a favourable one. When I came before it I happened to have in my pocket an illustrated card, received that morning from Madrid, of Goya's famous group of the Spanish Royal Family; and I could not help contrasting the way the Spaniard had composed his not very satisfactory material with the long level line, broken only by the towering form of Sir Henry Wilson, of these British Generals, and the drab colouring lighted sparingly by scarlet cap band or tabs and orders. The artist seems to have looked at his subject as mural decoration, and to have centred on the portraits some of which—as those of Generals Sir W. Birdwood and Louis Botha on the extreme right—are considered excellent, while others, such as that of General Sir A. W. Currie on the other side, are not so satisfactory. Near this large canvas, which is destined for our National Portrait Gallery, are two delightful landscapes, the "Whisper of Autumn" by Sir David Murray, R.A., and Arnesby Brown's "May Morning" near Nottingham: I consider this last—cool, vaporous, yet rich in colour—a gem of this painter's work.

The next wall contains work by the two Shannons ("Mrs. Pieris," by Sir J. J. Shannon, R.A., "The Pursuit," by Charles Shannon, R.A.); a dignified full-length likeness of H.R.H. the Duke of Cambridge, by Sir Arthur Cope, R.A.; and an excellent portrait by Augustus John, A., of Captain the Hon. F. Guest, M.P., which almost rivals his admirable head of Bernard Shaw in Gallery XI.; but it is the wall opposite, to which we come next, which contains some of the best work shown this year. In last year's Academy I picked out for special mention the deliciously cool and fresh landscape by Algernon Talmage. Since then this artist has been elected an Associate, and his "Dedham Landscape" here has the same delightful qualities as his "Freshness of Morning" of last year. In a line with this is Sir William Orpen's portrait of Sir Charles Villiers Stanford, D.C.L., which, in its wonderful colour scheme of silvery greys running through the robes and flesh tints, is to me far the best Orpen portrait of this year; and then, passing the "Spring" by George Henry, R.A., with its sense of wind and sun, which I have mentioned, we came to the second portrait of the Countess of Rocksavage, this time with her little son, by Charles Sims, R.A. I should not hesitate to select this as the portrait which really counts in this Academy. All is cool, luminous, bathed in light: the young mother is seated with her child in an open verandah, and the very stiffness of her pose, especially in the set of the head, may be designed to give relief and contrast to the graceful, childish form on her knee. Looking close, we may note that the outline of the limbs is often as broken and jagged as the teeth of a saw, to give roundness and freedom to the line, while in the same way blue is introduced in the most unexpected ways: "Blue in the eyes, in the eyebrows," said one visitor in the crowd on private-view day; "blue in the shadows of the hair. . . . She's quite in the 'blues'!" Near this fine work, "Poplars of the Maas," by Bertram Priestman, A., makes a pendant to the "Spring," or, still more, to the "Dedham Landscape," which it rivals in fresh clean colour; and I have never seen a much finer Henry Tuke than his "Morning Splendour" on this wall, with the rich sunlight reflected in the figures of the lads bathing.

The portrait by Charles Sims of "Sir Harry Frankland Hepburn" in the next room is a good piece of direct portrait work, but without the subtlety of that above-mentioned; and near this "The Faun," by Mrs. Swynnerton, has imagination in the quaint figure, besides its lovely colour. In the same room Anna Airy has a very clever interior, "In the Stable," though her "June Morning," in the next room (V.) is far more striking and attractive. This, too, is an interior, but that of a bathing-hut, filled with girls dressing or undressing for their morning swim, while behind, through the open door, is a vision of blue seas and sky. Some joke is going round, and the elderly maiden lady, seated in the centre and seeming a little shocked, is a foil to all these fresh young forms, glowing with life and spirits. The whole thing is supremely clever: the grouping and drawing of the figures unexcelled. Take as an instance the girl who, standing, stoops forward to tie her sandal—a bit of drawing as difficult as it is cleverly rendered. In every side of art—in decorative or floral design, still life, or figure work—this artist is on a high level of technical achievement; and if a recent suggestion of women Academicians were to ever materialise she should be at least "in the running."

I wish now to carry my reader to Gallery XI., which seems this year to be an outlet for the more modern tendencies in art, but first will mention here "Porpoises," by Norman Wilkinson, who shares this year with Julius Ollson and W. L. Wyllie (Wilkinson's "Britannia rounding Lymington Buoy" is admirable) the honours of sea painting. Most noticeable in Gallery XI. are Helen Mackenzie's "Cupid"; Max Martin's "Portrait Group," suggesting elements of Kennington or Guevara; Harold Knight's beautifully painted "Miriam"; and

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THE INTERIOR
OF THE
DUOMO, SIENNA.

Sketch by the late ALEC HORSNELL.

Gerald Moira's "Cornish Dance"; yet further, A. J. Munnings's fine study of a Life Guards' drummer, mounted; "The Cinema Girl," by Percy Willats; Adrian Allinson's "Midsummer Portrait," brilliant in colour; and Mr. John's masterly portrait study, already mentioned, of "G. B. S."

The water colours reach a good level in the South Rooms, where I would mention specially Dudley Hardy ("Calm after Strife"), Russell Flint ("Lone Sands"), Dorothy Hawksley in a Chinese story, Cecil A. Hunt ("French Chalk"), and, lastly, Fred Taylor's "Porta Felice," a fine architectural study of old Venice.

London Art Galleries.

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The International Society of Sculptors, Painters, and Gravers are now holding their twenty-eighth London exhibition at the Grafton Galleries. I noted in the first room Ambrose McEvoy's portrait of Mrs. Claude Johnson; a clever gipsy scene, "Arrival," by A. J. Munnings, A.R.A.; and Oswald Birley's "S. Maria della Salute," which gives the entrance only of that grand Baroque church. In the same room Frederick Sandys's "Mrs. Jane Lewis," a masterly piece of work, compares favourably with Sir John Millais's "Mrs. Biscoffsheim," shown in the next room. There is some charming figure work in this exhibition by Eugene Paul Ullman, Frieseke, and Ethel Walker.

At Walker's Galleries the drawings by Joseph Farington (1747-1821), the so-called Dictator of the Royal Academy, whose diary is now appearing in the "Morning Post," show this artist as a really fine draughtsman, but scarcely as a colourist.

I am obliged to reserve to a later issue my notice of the interesting memorial exhibition of the sculpture and drawings of the late J. Havard Thomas at the Leicester Galleries, as well as the sculpture of Phyllis Archibald Clay at the XXI. Gallery. The Havard Thomas Exhibition, which I have already alluded to, is of very great interest.

S. B.

Forthcoming Events.

Friday, May 5.—Iron and Steel Institute. Annual meeting at the Institution of Civil Engineers, Great George Street, Westminster. Second day. 10.30 a.m.

Saturday, May 6.—Edinburgh Architectural Association. Visit to Penicuik and neighbourhood.

Monday, May 8.—Surveyors' Institution. Meeting at 12 Great George Street, Westminster. Paper by Mr. Robert Cobb, F.S.I., entitled "Agricultural Valuations." 8 p.m.

Wednesday, May 10.—Architects' Benevolent Society. Annual General Meeting at 9 Conduit Street, W. 5 p.m.

Thursday, May 11.—Royal Institute of British Architects. Address by Mr. J. Alfred Gotch, F.S.A., F.R.I.B.A., on the Coke Collection of Smithson Drawings and some newly-found drawings of John Webb (now on exhibition). 5 p.m.

The death is announced at Eskpark, near Musselburgh, of Mr. James Souttar, F.R.I.B.A., who belonged to Aberdeen, and for many years was one of the leading architects in the city. He was in business on his own account from the early "sixties" until about fifteen years ago, when he retired and took up his residence near Edinburgh.

The prizes and studentships pamphlet of the Royal Institute has just been published, and is on sale at the R.I.B.A., 9 Conduit Street, W. 1, price sixpence, exclusive of postage. The conditions of the prizes have been largely remodelled, and the system now in use is based upon suggestions received from teachers and students. For the current year prizes totalling in value over £2,000 are offered. It is expected that there will be keen competition this year for the most coveted awards in the architectural profession.

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Modern Methods in Building Construction.—XV.*

By Albert Lakeman, M.S.A., M.C.I.

Foundations on Soft Soils (*cont.*).

The previous notes dealt with soft soils overlying a hard strata situated about 10 ft. from the surface, and, although the details of raft construction will apply to conditions where soft soil of great depth exists, the method of deriving support for point loads and heavy structures and for the raft itself will present a much more serious problem. At the same time it is probable that water will be present in the soil within a few feet of the surface, and this will add to the difficulties of forming the foundations, especially so if sumps or other features occur, which call for excavation below the general floor levels, or if a basement has to be constructed. The problem of constructing a basement floor, below the surface-water level, is quite a common one in practice, and, when to this difficulty is added that of securing a good bearing for the foundations, it is essential to design and execute the work on special lines and to take advantage of any modern method or appliance which will simplify the work while making for efficiency and economy.

The finished work will also need to be made watertight, and this fact will call for particular care in the selection of the materials to be adopted. The essential points to which attention must be directed in foundation work of this kind can therefore be grouped as follows: (1) The need for keeping back the adjacent soil while excavating; (2) the provision of a reasonably watertight barrier around the excavation; (3) the provision of pumping arrangements to remove the water in the first instance and to provide for keeping the excavation free from accumulation of water during the work due to leakages; (4) the most economical and efficient method of executing the supporting units for the foundation of the superstructure; and (5) the construction of the basement to make it stable and watertight.

Items 1 and 2 will be dependent upon one another, and the provision of the watertight barrier will keep back the adjacent soil. This provision will take the form of sheet piling, and this feature is of great importance, as the success of the work during the execution from the architect's and the contractor's point of view will be dependent on the efficiency of this sheet piling. Item 3 will be met by the installation of a pump or pumps of a reliable character with sufficient capacity to cope with any possible demand. Item 4 will be governed by the conditions of the soil below the level of excavation and the nature of the loading, but some system of piles or caissons will be necessary.

The conditions in item 5 will be met by the provision of suitable retaining walls, and water-proofing of some character must be adopted. To summarise these points we have (*a*) sheet piling; (*b*) pumps; (*c*) piles; (*d*) water-proofing. These main headings cover the system or method in a general way, and there are many details in each case which require to be considered, including such items as the provision of coffer-dam framing, the appliances and methods used in pile driving, the type of pile most suitable for the work; the type of pump to be installed, the most efficient water-proofing system, and similar matters, and it is in the consideration of these details that the success or otherwise of the work will be determined. It will be clear that inefficient steel sheet piling, badly driven, will mean failure, and likewise considerable expense and trouble may be incurred if the provision for pumping is insufficient owing to lack of proper care and foresight on the part of the contractor. Again, the supporting piles must be designed, and the type selected, to suit the conditions; and the water-proofing provided must be of reliable character, as the mere provision of piles and water-proofing is not sufficient because they have definite functions to fulfil; and their selection and application must be governed by any conditions which will be likely to affect them when they are endeavouring to fulfil these functions.

This class of foundation work will be considered by some architects and contractors as special work, which cannot be taken as coming within the scope of ordinary building construction, but this opinion could not be upheld unless it is assumed that the practice or business of the architect or contractor is a very limited one, which will necessitate the refusal of large schemes when difficulties of this nature may be met with. The assistance and co-operation of specialists will, of course, be available, and advantage should be taken of this, but, nevertheless, an intelligent understanding of the problem and the methods to be followed in constructing the foundations will enable the designer to adopt the materials which are most suitable, and in any case the architect of the building is the responsible person, whether specialists are employed or otherwise, and it therefore behoves him to become conversant with all the branches of construction, whether special or ordinary.

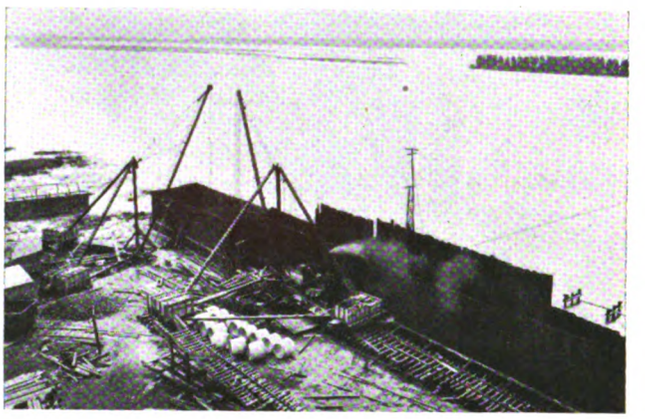


Fig. 76.—SHEET PILING BEING DRIVEN.

Sheet Piling.—There are several good forms of sheet piling available, and the user will find no difficulty in obtaining a type which will be suitable for any conditions met with in practice. The application and general methods followed can possibly be best described by a few notes on a typical example executed under the supervision of the writer. This example consists of a pumping station for a large factory which was erected on the bank of a large river, and where the soft soil had a depth of about 30 feet, below which was a solid rock strata. The floor level of the building was arranged about 2 feet above normal water level, and it was necessary to form a large sump for the pump suctions, which involved excavation and concrete carried down to a level of about 11 feet below the normal water surface, and in addition a 48-in. diameter intake pipe-line had to be laid at the low level parallel to the river bank to connect the sump with an existing concrete intake chamber about 225 feet away.

The general method followed was that of building a timber framing as the guide for the sheet piles, which were then driven to the necessary level, the water was pumped out, while the excavation was made with a grab-bucket operated by a travelling derrick, the supporting piles were driven and the reinforced concrete executed.

A general view of the work in progress is given in fig. 76, and the nature of the undertaking can be seen.

* I. Introduction, Steam Shovels, Jan. 13; II. Steam Shovels (*cont.*), Trench Diggers, Jan. 20; III. Grab Buckets, Scrapers, Jan. 27; IV. Drag-line Excavators, Feb. 3; V. Derricks and Cranes, Radial Loaders, Feb. 17; VI., Surplus Soil Transport, Feb. 24; VII. Surplus Soil Transport (*cont.*), Mar. 3; VIII. Surplus Soil Transport (*cont.*), Mar. 10; IX. Surplus Soil Transport (*cont.*), Mar. 17; X. Surplus Soil Transport (*cont.*), Mar. 24; XI. Foundation Work, April 7; XII. Foundation Works (*cont.*), April 14; XIII. Foundation Work (*cont.*), April 21; XIV. Foundation Work (*cont.*), April 28.

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FIG. 77.—FRAMING FOR COFFERDAM.

On the left of the illustration a stationary derrick is shown, this being used at the point where the pumphouse was erected, while the travelling derrick in the foreground operated at the pumphouse and for the length of the intake pipe. The latter was laid with reinforced concrete pipes, and some of these are on the site ready for installation. The sheet piling is partly driven, and it will be noticed that this is being carried down in stages. The framing for the coffer-dam in course of construction is shown in fig. 77, this consisting of 12-in. by 12-in. timber waling-pieces and 12-in. by 12-in. braces spaced 10 ft. centre to centre.

Two sets of waling were used, spaced vertically about 5 ft. apart.

A guide waling-piece 6 in. by 8 in. for the steel piling was also provided, this being framed 3 in. outside the upper waling above referred to, and stiffened by round wooden piles driven about 2 ft. outside the main framing.

The steel sheet piles employed were 30 ft. long and were set up by means of the derricks between the main and guide waling-pieces. All the sheeting was set up as shown in fig. 78 before any was driven, and it was then carried down in stages of 5 to 8 ft. at a time. A steam-hammer was used for this purpose, as it proved to be quicker than a drop-hammer, and the piles were not distorted. Some difficulty was experienced when

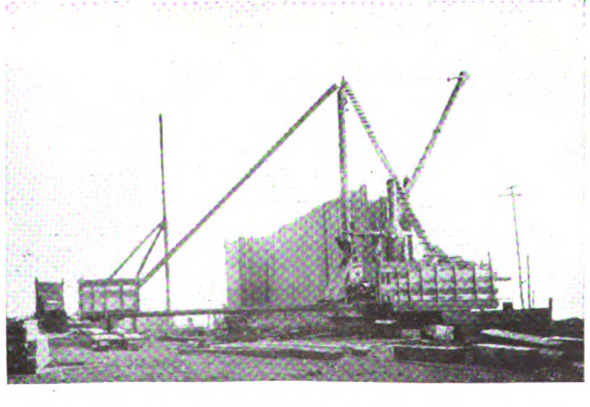


FIG. 78.—SHEET PILES IN POSITION READY FOR DRIVING.



FIG. 79.—PUMP HOUSE ON RIVER BANK.

driving the piles near the existing concrete intake chamber, as several obstructions, such as old timber cribbing and concrete, were encountered, probably left when the original intake was constructed many years ago, and in these cases it was found to be more effective to use a 2,800-lb. drop-hammer until the piles had cut through the obstructions. When the piles had been driven down about 18 ft. below the water-level hard pan was encountered, and it was found necessary to use a water jet in order to drive them successfully. A long 2-in. iron pipe with ½-in. nozzle was employed, and a water pressure of about 130 lb. was applied to give a good jet, and with this aid most of the piles could be driven



FIG. 80.—STEEL PILING COVERED DURING FLOOD.

by the steam-hammer, as the bottom of the piles followed the nozzle of the jet without difficulty.

The piling was arranged on a line about 3 ft. outside the concrete foundations, and this left sufficient room outside the forms for all leakage water to flow freely to a sump, where a pump with a 3-in. discharge was operated.

The sheet piling was driven to the solid rock, and the top was about 2 ft. above the water-level. This piling was not withdrawn, but left in position as a protection against any dredging which might possibly take place in the future, and also as a protection against floods and damage by ice, large quantities of which came down the river in the late spring from a lake some short distance above the site of the building.

The wisdom of this course is shown to some extent in figs. 79 and 80. The first of these shows the work as

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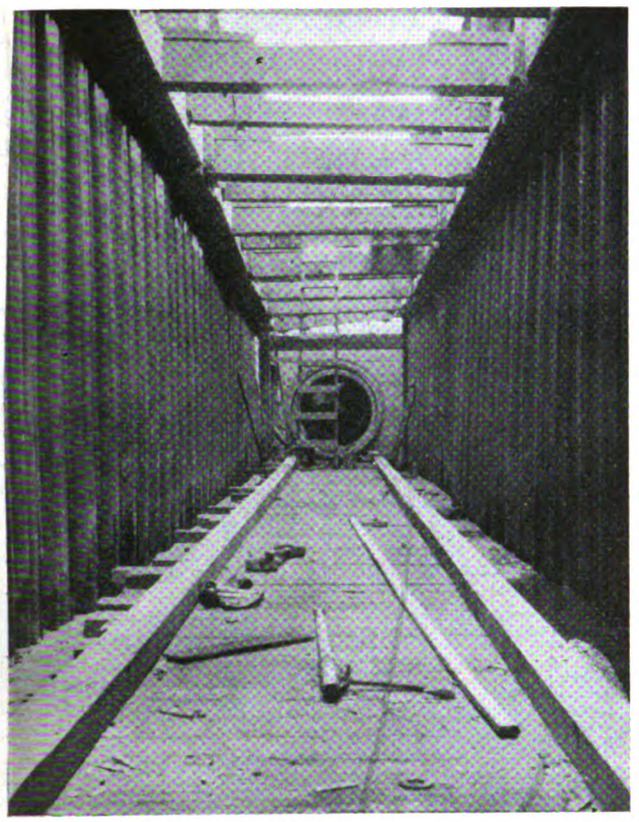


FIG. 81.—DECKING FOR INTAKE PIPE.

completed with the steel piling left standing up, and the latter shows the same building seven days later when a fierce gale had occurred, during which a wind velocity of ninety-six miles per hour was recorded, and this caused the water to back up the river until the top of the piling was reached. No damage was caused to the structure or intake pipe-line, but if the steel piling had been withdrawn, as is frequently the case, the back-wash would undoubtedly have withdrawn the soil in the vicinity of the building and over the intake pipe and caused trouble. When the sheet piling was all driven to the rock, the excavation for the sump and the intake pipe was executed with the grab bucket, operated by the derricks, and the main piles for the sump foundations and wall foundations of the structure and for the support of the pipe-line were driven, these being 28 feet and 35 feet long and carried down to the rock by the use of a 2,800-lb. drop-hammer. The sump was constructed with reinforced concrete bottom and walls which were formed in the ordinary way as the water was kept down, by pumping, to a level below the work at the lowest point. The foundation piles for the 48-inch diameter concrete intake pipe were decked with 3-inch planks as shown in fig. 81 to ensure an even seating, and on this the pipes were laid at a level of 11 feet



FIG. 82.—INTAKE PIPE COMPLETED.

below the water-line outside the steel piling without any difficulty. After the pipes were laid, inspected, and approved the water was allowed to rise before the filling in was executed, and the illustration in fig. 82 shows the completed pipe-line with the water rising over the decking and up the pipes. Although this example is not put forward as a particularly extensive or difficult scheme, it indicates in a very fair manner the general application of sheet piling in modern work, and the ease and speed with which the work was carried out was due to reasonable

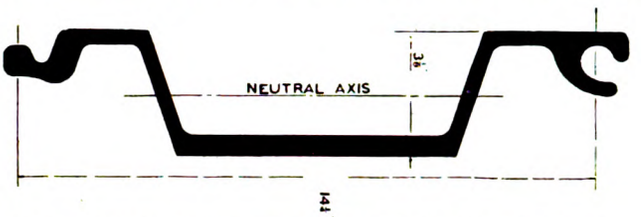


FIG. 83.—RANSOME'S STANDARD TYPE, D SECTION.

foresight in providing sufficient protection against water while the scheme was in hand, and the outlay entailed by such provision was justified by the assured success of the operations. In many schemes where no basements or sumps occur which do not require excavation, but merely support at about the ground level, sheet piling will not be required and foundation piles driven from the surface will meet the conditions, but before dealing with such cases it will be useful to give particulars of some of the available types of efficient steel piling that will be required for cases where excavation is necessary.

Ransome type D Interlocking Steel Piling as supplied by the Ransome Machinery Co. (1920), Ltd., of Grosvenor Gardens, London, has been used on some of the largest contracts throughout the world, and it is claimed that this type is 30 per cent. lighter than any other of equal strength. The standard section is shown in fig. 83, and it is supplied in single lengths up to 60 feet. If longer lengths than this are required, they may be obtained by butt-jointing and fishplates, but it is seldom that a greater length will be necessary. The weight per foot run of pile is 33 lb., and the weight per square foot of interlocked piling is 28 lb., which gives 80 feet



FIG. 84.—RANSOME'S STEEL PILING AT WESTERN DOCK, LONDON DOCKS.

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super of coffer-dam area to one ton of piling. It is claimed that this area per ton is greater than other types of equal strength, and the piling is therefore economical, as it costs less to purchase and handle when a comparison is made on the basis of area covered, and not on the price per ton only. This section is suitable for all classes of work either of temporary or permanent character, and it is claimed to be absolutely watertight without caulking or clay puddling. The Ransome piling was selected for the Rosyth Naval Base contract carried out by Messrs. Easton, Gibb & Son, Ltd., and about 40,000 square feet was used, the piles being 45 feet long and the head of water from 20 feet to 25 feet. Another interesting example of the application of this steel-sheet piling is shown in fig. 84, this depicting one of the dams at the Western Dock, London Docks, undergoing reconstruction by Messrs. Holloway Bros. (London) Ltd. It will be noticed that a very small amount of strutting was used, and no caulking or clay puddling was necessary. After being in position for several months the piles were successfully withdrawn by a Ransome pile extractor for use elsewhere, and although they had been driven through Thames ballast they were in good condition, and practically equal to new. This is an important consideration, as the use and subsequent re-use of piling, which is of a stiff section, will mean a large return for the initial outlay on the cost of the piles. A standard form of steel pile cap is supplied by the manufacturers of this type of piling with the piling material, and this is all that is required to take the blow during driving, except when the material to be driven into is exceptionally hard. The makers state that, although their piling has been driven on various lengths up to 60 feet, in all classes of soil, the necessity has not yet arisen for the use of a timber dolly.

(*To be continued.*)

Correspondence.

To the Editor of THE ARCHITECT.

SIR,—In the issue of your paper for April 7, 1922, on page 24, you give a list of current London prices applicable to buildings over £1,000, and particularly under the heading "Excavator, concreter, and drains," you state that of Portland cement, concrete, and ballast the price for 1 to 6 concrete is 41s., and the price for 1, 2, 4 concrete is 51s. per cubic yard. We should be greatly obliged if you could give us the same proportionate prices for a 1 to 5 concrete and a 1, 2, 3 concrete, as we are presently constructing a building with these proportions, and it would be of interest to us to compare the prices here with the London prices. —Yours, &c.,

HUGH SYMINGTON & SONS, LTD.

190 West George Street, Glasgow.

[We have received the above letter, and append the answer given by the contributor of our London Prices.—ED.]

Analysis of value of 5 and 1 ordinary cement concrete :—

5 yards Ballast at 15*s.* ...	75	0
1 yard Cement (in 11 sks. to ton) bulk measure	70	6
Sack hire	2	9
Divide by no. of parts=6 ...	148	3
	24	9
Shrinkage, compression, waste and cement lost in voids, 33⅓%	8	3
	33	0
Labour : Measuring Material, Mixing, Fill Barrows, Wheel (one run), Tip —Level and Ram, 2 men 4 hours at 1*s.* 5*d.*	5	8
	38	8
Profit 10%	3	10
Per Yard Cube = ...	42	6

If spread and levelled in paving add ¼-hour labourers' time per yard *super.*

If hoisted allow an addition of 3/6 per yard *cube.*

Analysis of value of 3 . 2 . 1 fine cement concrete :—

3 yards ¾in. fine ballast, 19*s.* ...	57	0
2 yards sand, 19*s.*	38	0
1 yard cement by bulk ...	70	6
Sack hire	2	9
Divide by no. of parts=6 ...	168	3
	28	0
Loss in voids, shrinkage, compression and waste 50% ...	14	0
	42	0
Mixing, &c., as before and working around reinforcement, 4½ hours	6	5
	48	5
Profit 10%	4	10
Per yard, cube	53	3

If under the specification the cement has to be added by weight, *i.e.*, 90 lbs. per cubic foot; substitute for the above bulk cement value.

27 feet cube at 90 lbs. per foot cube at 70*s.* 6*d.* per ton... ... 77 1

Ton	Cwt.	Qrs.	Lbs.
1	1	3	6

Levelling and hoisting values to be added as before where required.

Allow 3 hours per yard cube for working concrete into lintels or beams around reinforcement.



GATEWAY IN GARDENS, VILLA BORGHESE, ROME.
Sketch by the late ALEC HORSNELL.

R.I.B.A. Council Elections.

To the Editor of THE ARCHITECT.

SIR,—The election of the Council of the R.I.B.A. is to take place very shortly, and it is very much to be hoped that members will realise the responsibility resting upon them for using their votes. There are about 3,000 possible electors, and yet it commonly happens that only about 800 balloting-papers are returned.

A fact like this no doubt discounts the criticism that from time to time is directed against the Council, but, although Mr. Grayson has told us that probably no Council has had the confidence of the general body of members more fully than the present one, the duty of sharing in the direction of affairs by taking part in the election remains.

May I hope that you will use your influence in securing a favourable alteration in the number of those who use their votes?—Yours, &c.,

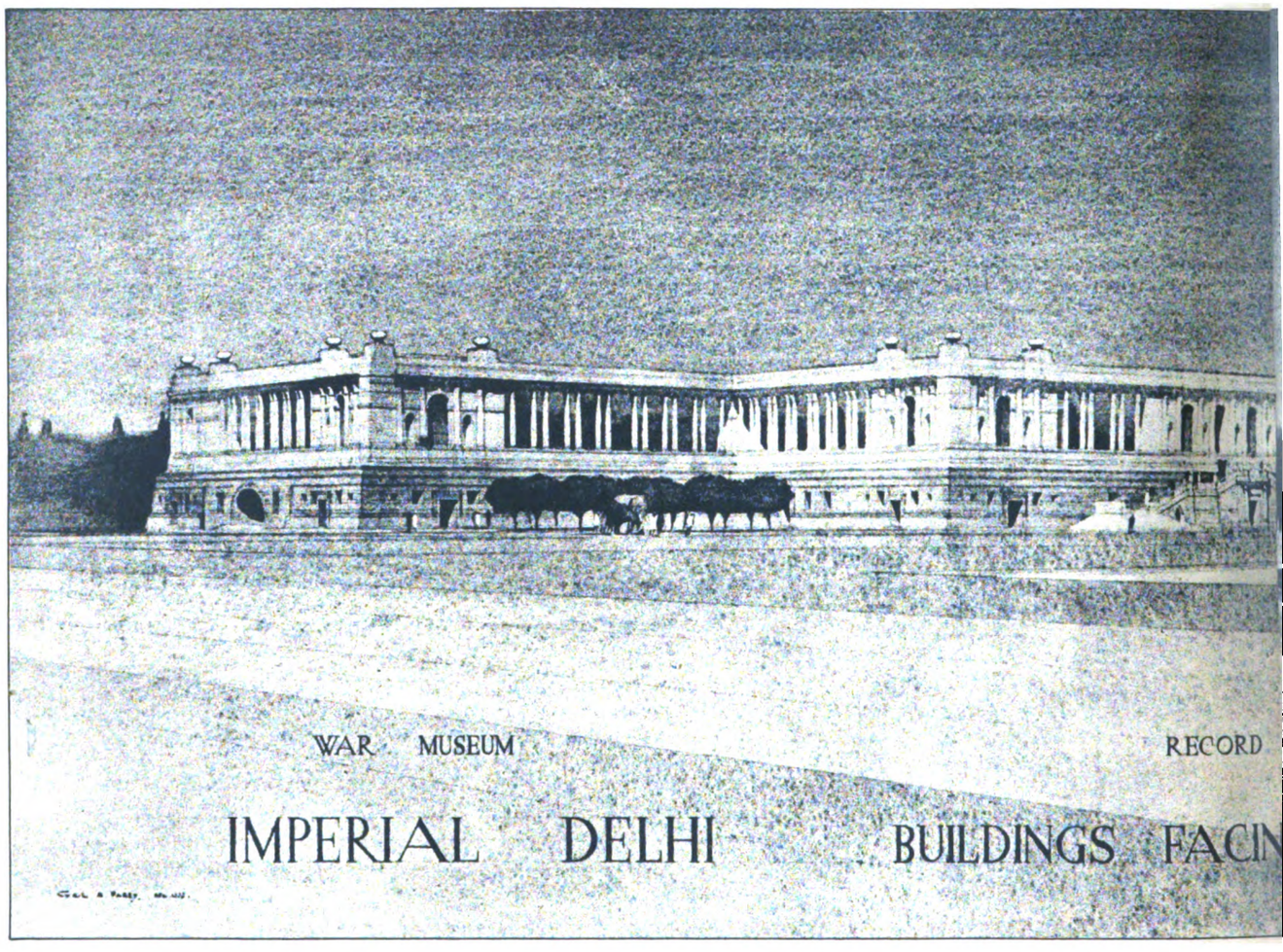
ARTHUR KEEN,
Hon. Secretary, R.I.B.A.
9 Conduit Street,
Regent Street, W. 1,
April 28, 1922.

Grimsby Corporation have accepted the tender of a Caistor builder for the erection of further houses on the Laceby Road site at £437 18s. 3d. for non-parlour type houses, and £442 19s. 5d. each for houses of another type. The first houses constructed under the scheme cost nearly £1,000 each.

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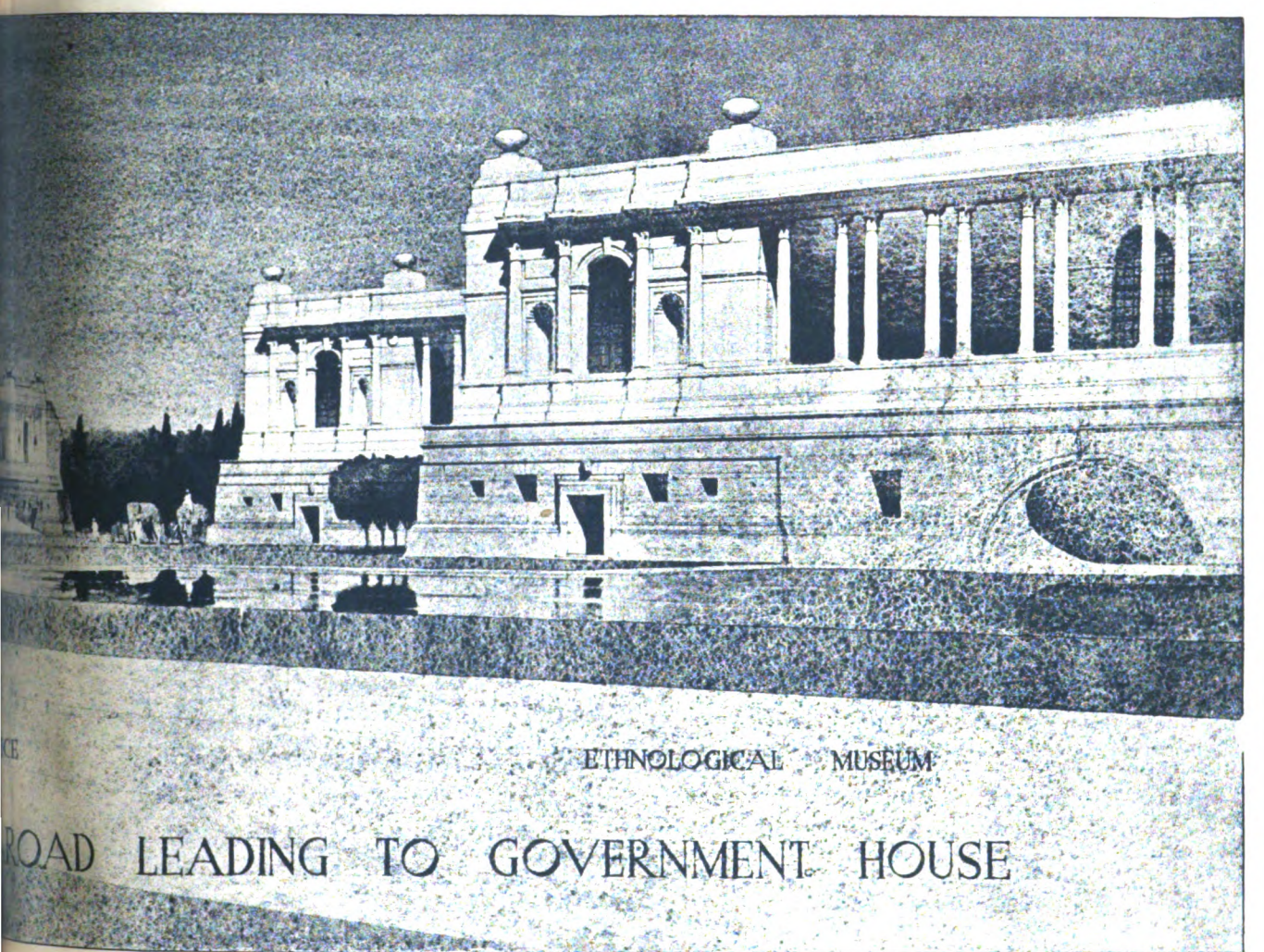
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IMPERIAL DELHI: BUILDINGS FACIN

SIR EDWIN L

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ETHNOLOGICAL MUSEUM

ROAD LEADING TO GOVERNMENT HOUSE

"INK-PHOTO." SPEAGUE-HAYCOCK (PRINTERS) LTD. 69 & 70, DEAN STREET, LONDON, W.1.

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R.A., ARCHITECT.

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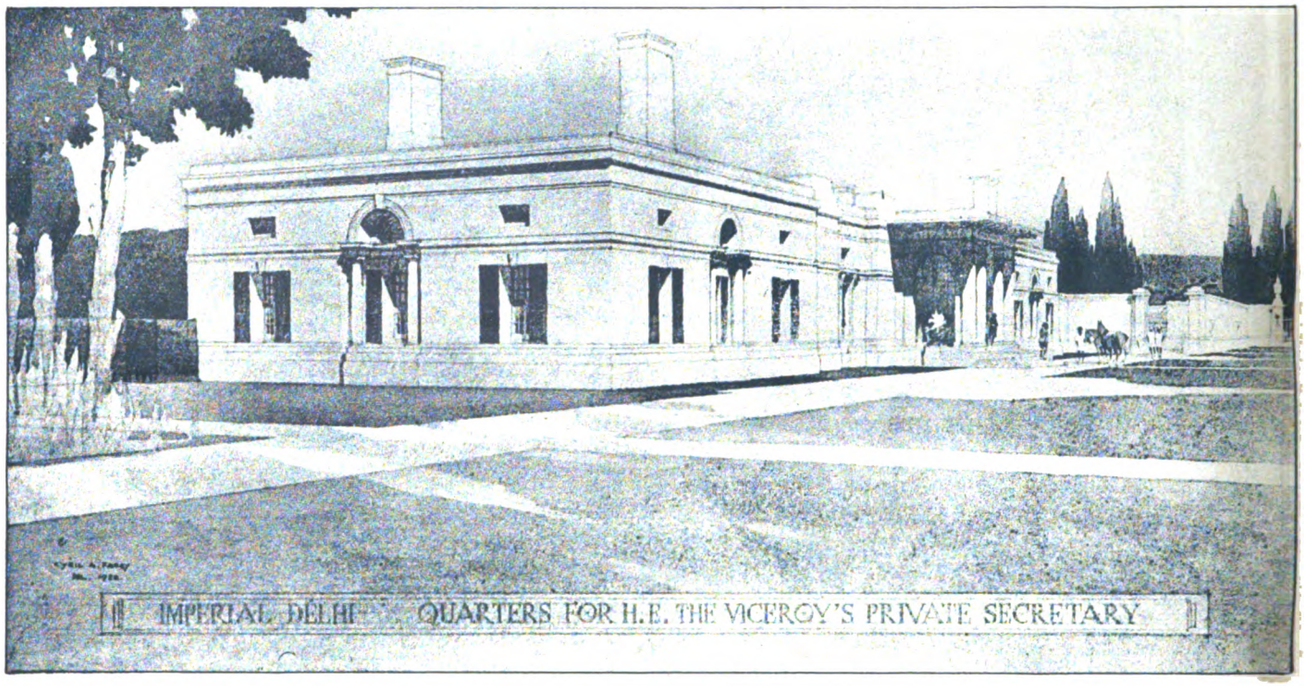
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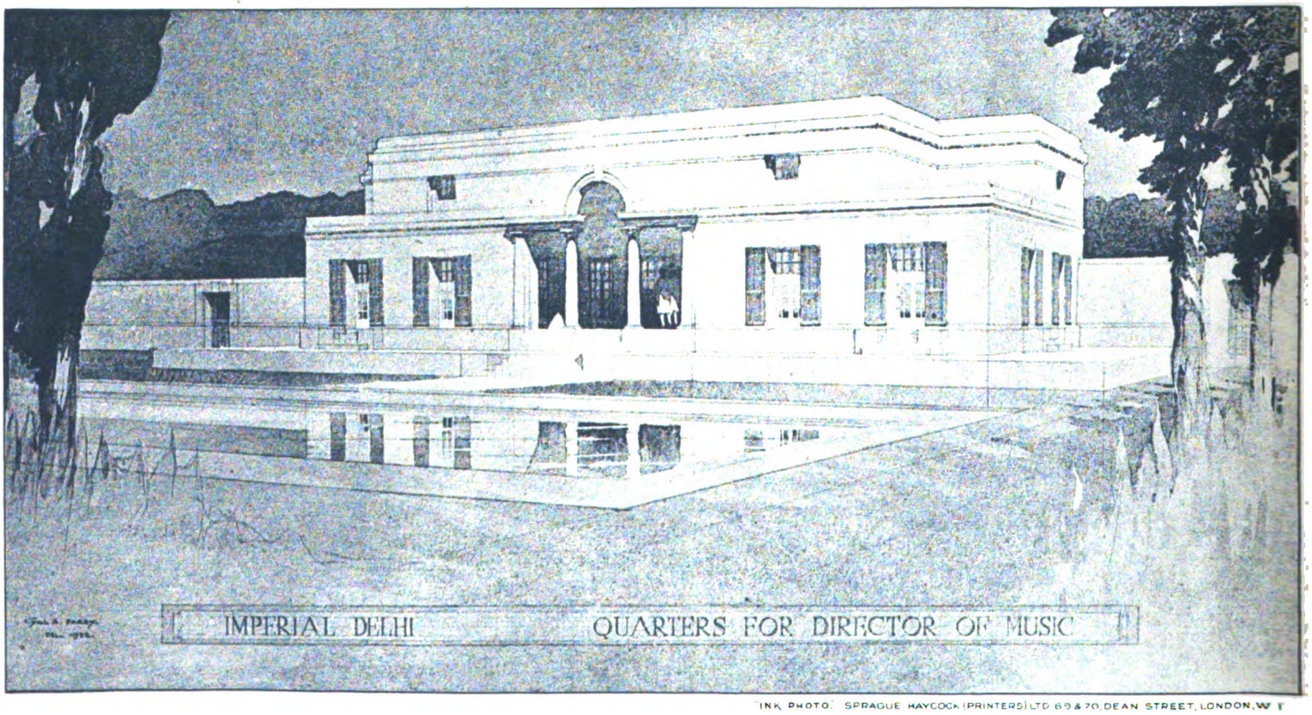
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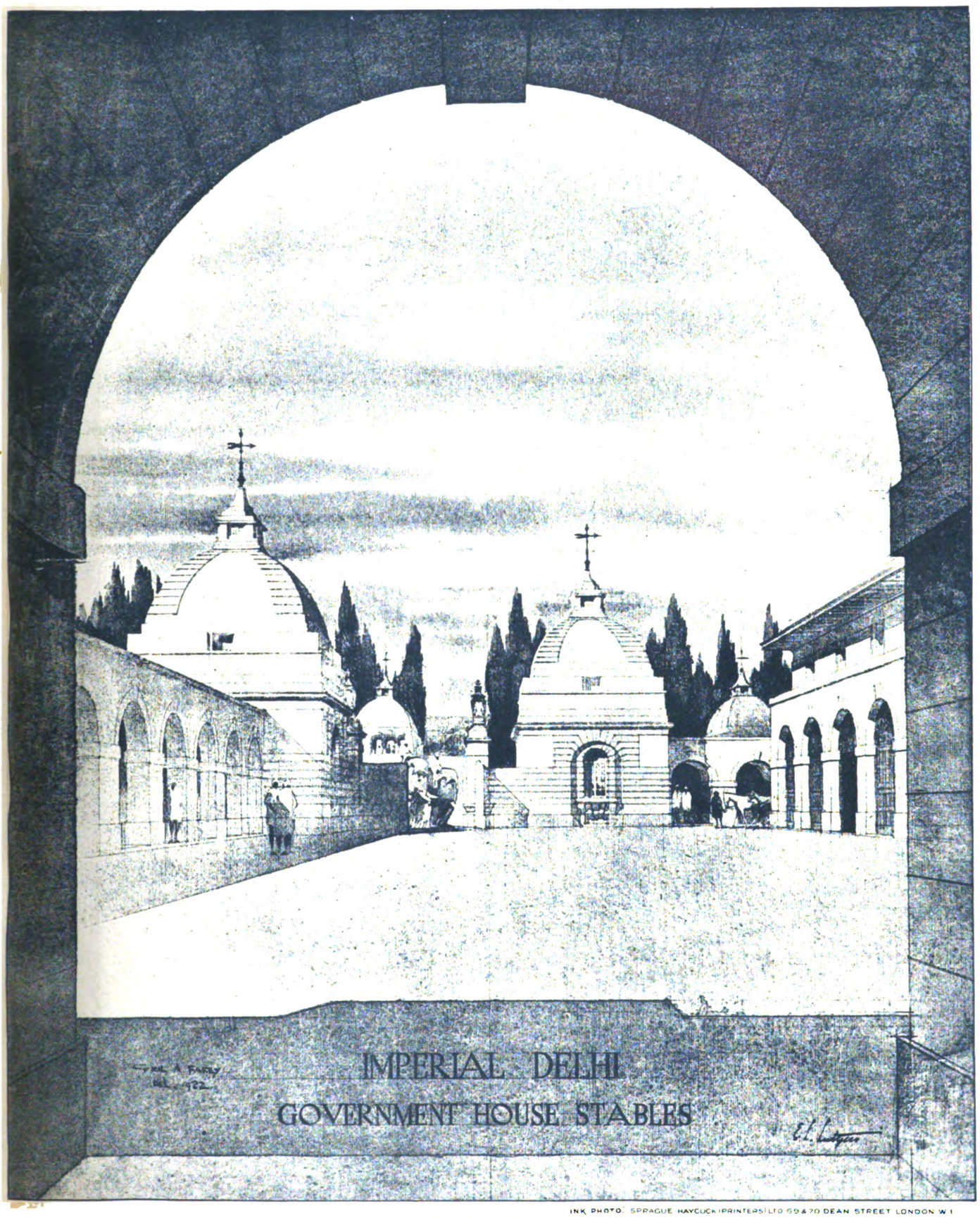
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IMPERIAL DELHI: QUARTERS FOR THE VICEROY'S SECRETARY AND FOR THE DIRECTOR OF MUSIC.

SIR EDWIN L. LUTYENS R.A., ARCHITECT

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IMPERIAL DELHI: GOVERNMENT HOUSE STABLES.

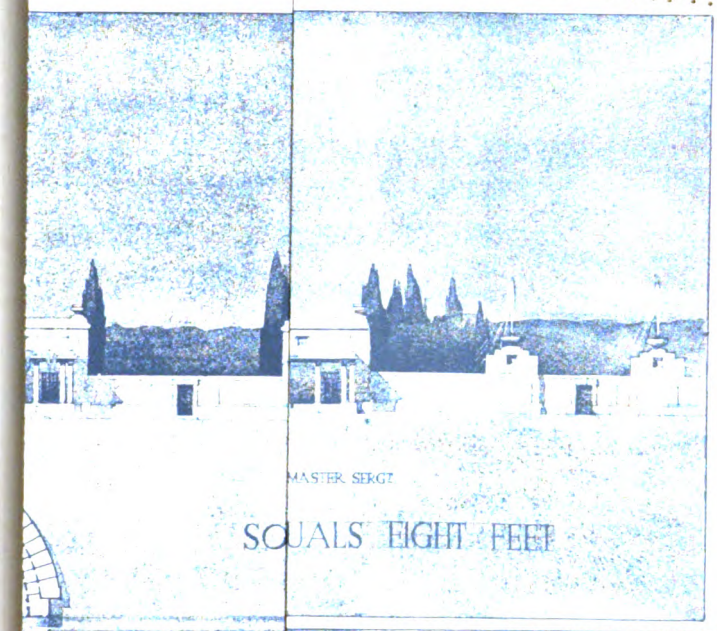
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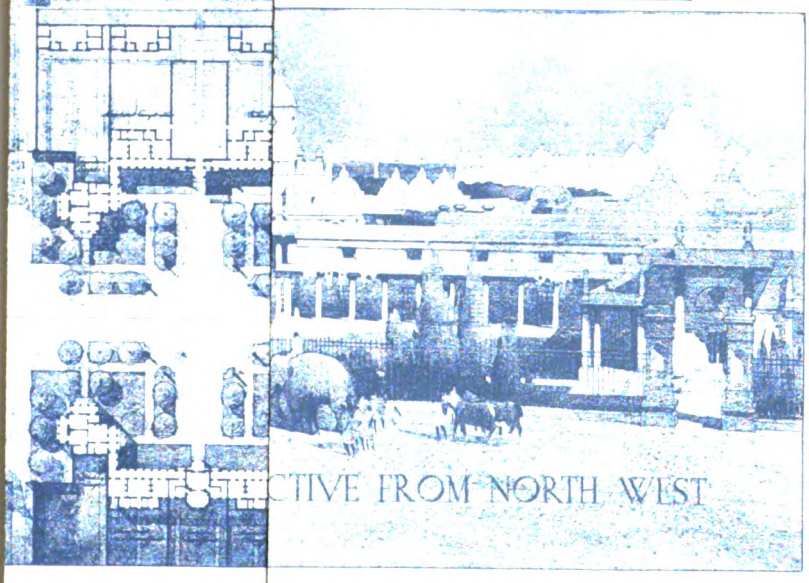
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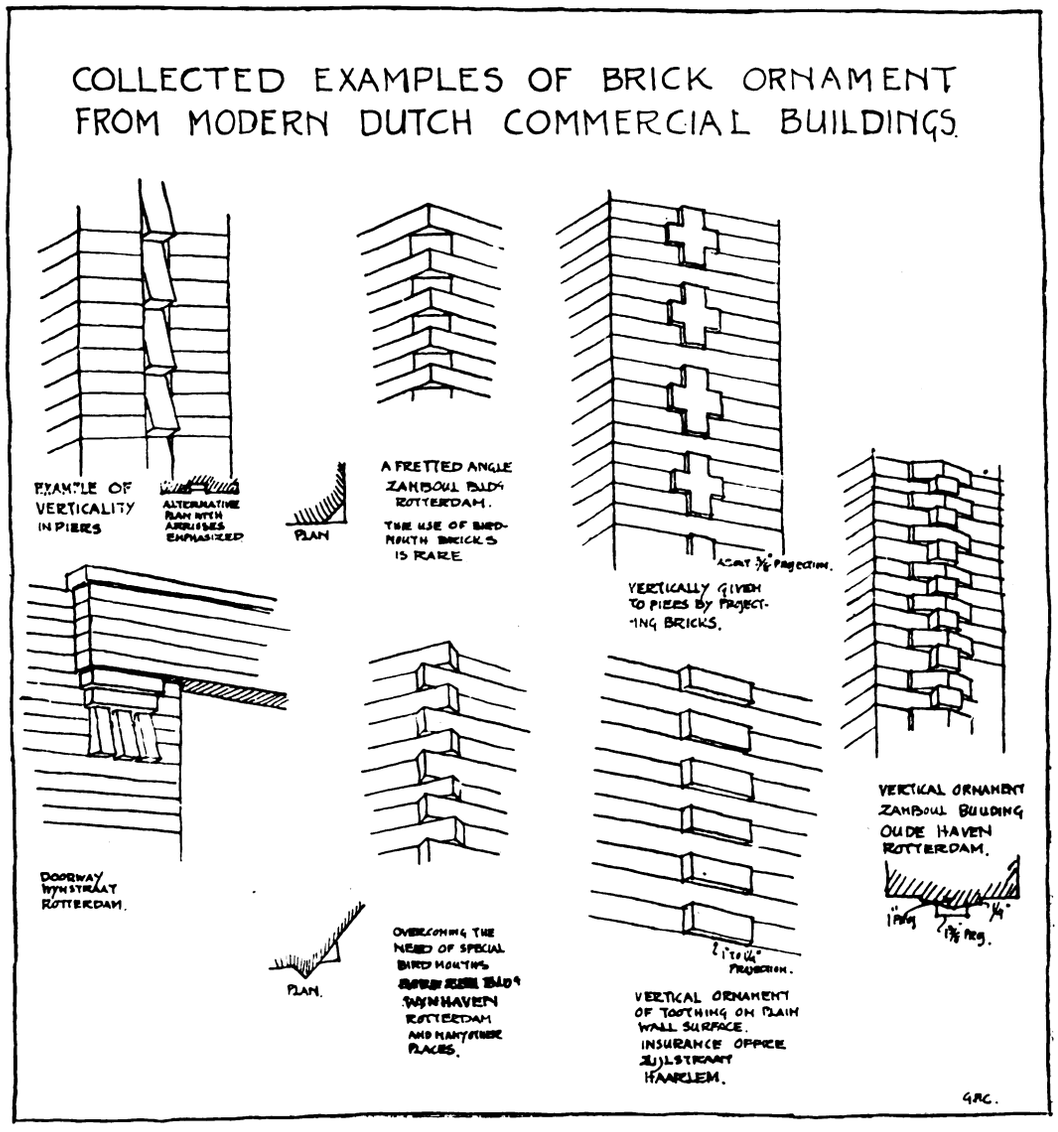
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Modern Dutch Brickwork in Commercial Buildings.

By G. Flint Clarkson, A.R.I.B.A.



The visitor to Holland is prepared to find a land of brick building, he sets out with preconceived ideas of fantastic gables in brick, with which so many etchings and paintings have familiarised him; he is aware that brickwork is said to have been reintroduced into England by Flemish settlers; he is familiar to some extent with the elaborate housing schemes, both two-storeyed and multi-storeyed, that are a marked feature of recent Dutch development, an experiment in State and municipal housing that undoubtedly to some extent helped to initiate our recent housing fiasco. As a matter of fact more State housing has been carried out in this small land than in Great Britain, but he is struck at once with the modern large commercial buildings carried out in this material; with the scale obtained from such a small unit; the power of grouping and massing expressed by the designers, and perhaps more than with anything else with the mastery of the material and the appreciation of its decorative qualities and freedom from the trammels of bonding with which he is familiar, a freedom that is at first unpleasant, but which is very soon appreciated.

This modern work is not at all the carrying on of the traditional use of the material. Just as the buildings are on a scale unknown before so the application of brickwork has been reviewed afresh in the light of the new conditions. The architect reflects at first that the work he is seeing is the result of German influence. So undoubtedly to some extent it is, but the outlook is in many ways different, and on inquiry he finds the German is by no means a *persona grata* in the Netherlands in any walk of life. When a study of the buildings is made in detail it is found that although a great deal of ornament is incorporated in nearly every building, yet no other shape is utilised than the ordinary rectangular building brick, and that very rarely is any cutting employed on the surface. He searches in vain for moulded or special brickwork, or for the bi-colour work, with which he is familiar in his own country. The one material is a purple-red sand-faced brick with a brown spread joint, which owing to the exceptional clearness of the atmosphere retains its colour and allows of the full beauty of the decorative use of the material to be perpetuated in a way that would be impossible in his own country.

In the housing schemes, especially those of two storeys (which are mainly flats), he will find bricks placed vertically or in a herring-bone arrangement, which are the chief decorative uses of the brick unit with which he is familiar, but these rather weak and ineffectual efforts are almost entirely absent from the great commercial buildings, where the decorative possibilities of brickwork are used to emphasise the main lines of the design rather than to focus the eye on spots and so destroy the breadth of the whole. A brick set as a birdmouth between two reveals will run from the bottom to the top of a building in the middle of a pier, giving a great effect of height and curiously of strength, or the common toothing on an unimportant piece of infilling wall. An ornament somewhat similar to that of toothing, namely, a Maltese cross, formed by projecting in three superincumbent courses, two headers and the stretcher between them is frequently found, not as sometimes in English work as an isolated feature, but almost always as a unit in a similar

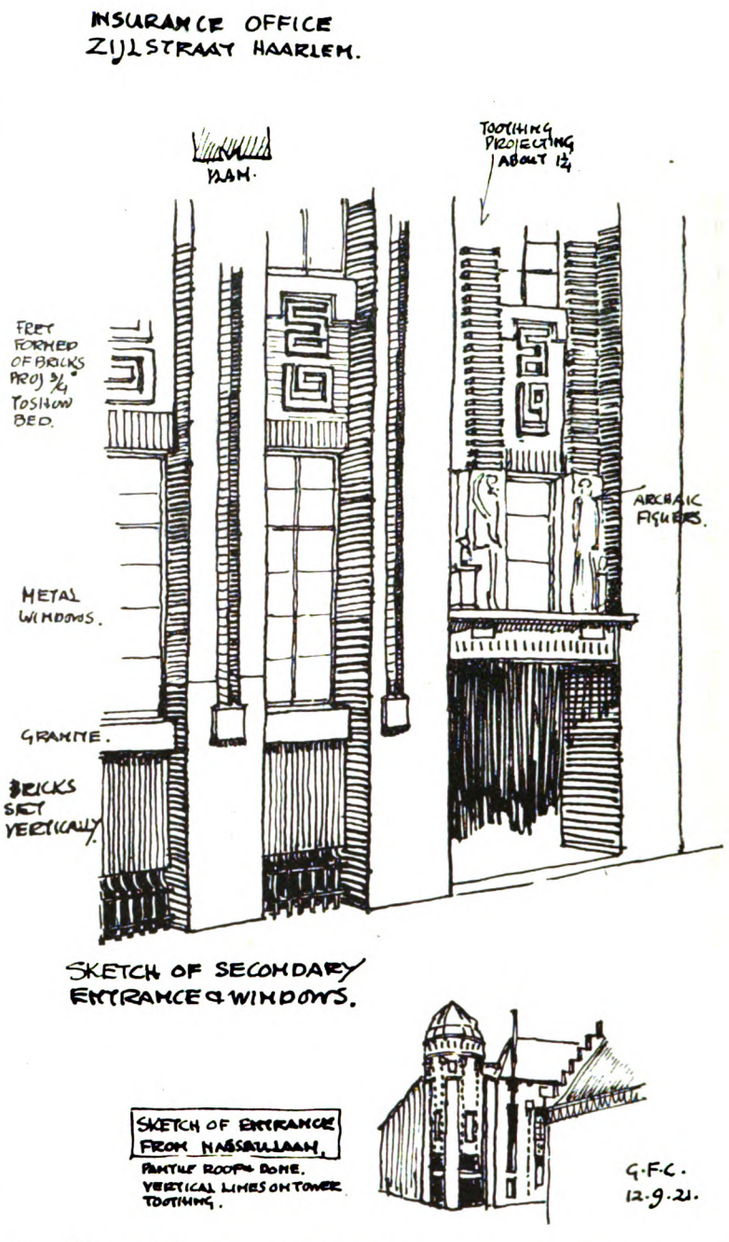
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repeat usually with the main axis of the repeat vertical. Obtuse birdmouths are avoided by running each course alternately beyond the arris. Here as well, as in the cases mentioned above, no special precaution seems to be taken against the risk of damp penetrating owing to the ledges formed. Another very effective use of the ordinary building unit owing to the interesting play of light and and shade which it produces is to set stretchers vertically one above the other on sloping beds. On analysis one realises that this must seriously affect the bond, but as it is never used where the pier is not ample for all requirements the evil is not apparent, and at once discounted on reflection. This particular ornamental use of the brick unit in combination with oversailing courses is very common in connection with door heads and fascias for shops and office windows. A good example is that of the U.S. Shipping Board in Wynstraat, Rotterdam. A reconstruction of the ground floor of an old building, which in this instance is carried out with a brick very similar to our Crowborough stock. The brick used in such a way as to show its bed is rarely found, but an interesting fret between the windows is to be seen in an insurance office in Zijlstraat, Haarlem.

As mentioned, any form except that of the rectangular building-brick is rarely found. A notable exception is, however, the Nordsee office on the Wynhaven at Rotterdam, where the key-blocks to the entrances are prows of ships in terra cotta, the projecting brick archivolt gradually increasing in projection from the springing to the crown, giving an idea of the swelling of a ship's side with most satisfactory results. Terra cotta panels of various sizes are used in this building, and the caps of the buttresslike piers are terra cotta blocks forming Neptune heads with long beards.

Everywhere the break with the style of the Flemish Renaissance is complete, the gable is almost entirely abandoned, and the parapet or long eave employed with a high-pitched pantile roof very little broken up. The composition is universally straightforward pier-and-lintel construction, the orders are never employed, and the brick-and-stone building is conspicuous by its absence. Swedish granite is occasionally used for the plinth or an isolated position. The emphasis gained by elevating the corner is made the most of in many instances. The treatment in the Nordsee Building at Rotterdam of a pantiled dome with a ring of brick dormers, the whole bound to the work below by two massive unenriched chimneys, is particularly noticeable. Here emphasis and a play of silhouette leading up to the corner feature is given by projecting brick oriels on long massive corbels of oversailing brickwork.

On a corner site in the Laam Van Meerdervoort at La Hague is an insurance office where the corner is not emphasised, but the central two bays of each front are carried up as a coupled dormer on the wall face, with low pediment without projecting coping and with a central flagstaff. The whole is roughcast ornament on the same lines as those mentioned for brick buildings, but of dark glazed tiles set at about the depth of a tile apart are put round the coupled windows of the first and second floors, and the ground storey is tiled with green tiles set in horizontal waves giving vertical lines. The whole is very dignified, original, and sound, and not at all bizarre. This treatment is not at all common, but at Scheveningen, overlooking the sea, there is a flat-roof house with two-thirds of the front a bay, the ground floor of the bay being a porch with columns under the angles of the bay, designed in a similar manner without the plinth, which, with its strong horizontal lines at the first floor and parapet, is well worth study.



Rotterdam contains extreme examples of the modern use of brickwork. On the Scheepmakers Haven is to be found an insurance office, strictly classic in its lines, with long, steep, unbroken roof, a most dignified and large-scaled building in spite of the small unit employed, and the café of the Golden Horn at the west end of the High Street, where every fancy that could be played with brickwork has been indulged in with none too happy results. Between these two extremes is another corner building at the north end of the Oude Haven used by a firm of trunk manufacturers, where vertical lines formed by two stretchers sloping on plan alternate with a projecting header. At Rotterdam, also, the back portions of the new Post Office, a remarkable building faced with Swedish granite, contains much interesting straightforward brickwork. At La Hague a good example is to be found in the Plaats. At Haarlem is the insurance office mentioned above, and opposite it the new technical schools are now being completed. At Leyden the local newspaper has a big building which very successfully treats an acute-angled site with a circular forecourt flanked by two-storeyed wings in front of a four-storeyed entrance block. At Amsterdam, as at La Hague, the principal buildings are stone fronted, but good examples of large-scale brick buildings will be found in the multi-storeyed housing schemes at both the east and west ends of the city.

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Royal Institute of British Architects.

The annual general meeting of the Royal Institute was held at 9 Conduit Street, W., on May 1, Mr. H. D. Searles-Wood, Vice-President, in the chair.

Mr. Arthur Keen, Hon. Secretary, read a letter from Mr. G. Gilbert Scott, R.A., thanking the Institute for their congratulation on his recent election to the full membership of the Royal Academy.

Announcement was made of the death of Professor James Black Fulton, elected Associate 1906 and Fellow 1921. Professor Fulton was Director of Architectural Studies at the Glasgow School of Architecture, and obtained the following distinctions in the R.I.B.A. Competitions: Tite Prizeman 1899, Institute Medallist (Drawings) 1900, Soane Medallist 1902, and Grissell Medallist 1903.

The decease was also announced of: Mr. T. A. Millar, elected Fellow 1921; Mr. G. E. Halliday, F.S.A., elected Fellow 1897; Mr. Harold French, elected Associate 1909; and Mr. Edgar Stones, elected Licentiate 1911.

Mr. Searles-Wood formally moved the adoption of the report of the Council for the official year 1921-22. This was seconded by Mr. Arthur Keen.

Mr. William Woodward, for the twenty-seventh year in succession, traversed and criticised the reports of the various committees. In alluding to the Council's hope that if the proposed National Building Code (now being drafted by a joint committee) was embodied in a Bill, it would "receive the warm support of the Ministry of Health," Mr. Woodward remarked that he was puzzled as to why the Ministry had been imported into the business—his own object was to exclude all persons connected with the Government. Similarly he could not understand why on earth the Government had been requested to appoint a neutral Chairman for a tribunal to which will be referred all points of difference that may arise in the drafting of the proposed conditions of contract for the building trade for England and Wales: fifty years ago the Institute would not have wanted the Government to appoint such a chairman. In alluding to the report of the Board of Education, Mr. Woodward suggested that when the Board rejected drawings submitted by candidates some explanation might be given of their reason. He believed the Royal Institute should do all in its power to prevent the cathedrals of England getting into the charge of the Office of Works under the Ancient Monuments Act; each cathedral chapter had its own architect already who was minutely familiar with the fabric, whereas the Office of Works would tend to standardisation and a loss of that personal feeling which independent architects can impart. The Literature Standing Committee had again pointed out both the inadequacy of the present space allotted to the Library and the serious risk involved in keeping the most valuable architectural library in the world in a building which is dangerously exposed to risk of fire. As their library was unique it ought to be made as far as possible fireproof. During the year there had been an increase both of the number of readers and of the number of books on loan. In speaking of the committees generally, Mr. Woodward maintained that the number of attendances ought to be stated in every case so that the general body could learn who were doing their duty. He wondered what the proposed special Housing Committee, which was to include representatives of the Practice and Town Planning Committees in addition to other members, would find to do. He hoped the Practice Committee would not proceed with their suggestion for the preparation and issue of a pamphlet setting forward the services that can be rendered to architects and explaining how clients can be of assistance to their architects. In alluding to the work of the Science Standing Committee, Mr. Woodward expressed his belief that science and research was getting too powerful a hold on the minds of the Institute. A young architect would learn most by being taken to the site of a new job where he could get a first-hand acquaintance with materials and other things. The Committee had appointed a joint committee to consider the subject of "a new building code for the encouragement of science in building"; his own belief was that the best results would be obtained by abolishing by-laws and leaving the control to district and local surveyors. The auditors' report showed a surplus of £375, as compared with a loss of £1,008 for the preceding year. The net cost of the "Journal" was £1,739 after deducting receipts: that was too much and ought to be reduced. The name of Mr. Sydney Perks, chairman of the Finance and House Committee, was a synonym for economy. Mr. Woodward concluded by paying a warm tribute to the staff—"there was no 'ca' canny' at No. 9 Conduit Street"—and to the Hon. Secretary and the President.

Mr. Gilbert Fraser commented on the paragraph of the Council's report under the heading of "Unification and Registration," which stated that on February 7, 1922, at a special general meeting, a resolution was moved by Mr. A. W. S. Cross to the effect that there should be no alteration in the constitution of the Royal Institute until after the passing of a Registration Act. One hundred and twelve members voted in favour of the resolution and sixty-six against. "The by-laws require a two-thirds majority which was not obtained, and the resolution was consequently not carried." He would like to know under what by-law was that ruling given, as he could not find one which referred to other than a private meeting—on February 7 both the Press and a member of the public were present. Did the proposed National Building Code have anything to do with conditions of contract? Who was Mr. L. Cope Cornford, the author of "The Designers of Our Buildings," and who had authorised the payment of £204 for doing what the Committee ought to have done themselves? Nothing had yet been actually done in the matter of the fire protection of the Library. He totally disagreed with Mr. Woodward on one point, for he believed the Institute ought to take up scientific research more energetically—as, for example, in the matter of jointless floorings. The payment of such a meagre sum as £92 for fire insurance seemed deplorable. A sum of £1,000 ought to be the absolute minimum for receipts from advertisements in the "Journal."

Mr. A. E. Munby also argued that the Institute ought to take more interest in science instead of less. There was a great deal of work requiring to be done. It would be a very great mistake if the impression was given that the R.I.B.A. was not prepared to encourage research.

Mr. Francis Hooper supported the idea of preparing a pamphlet on the services of architects.

Mr. Martin Shaw Briggs thought some alternative and less terrifying form of scale of professional charges would prove more beneficial than any pamphlet. The present form was excellent for the recovery of fees, but it was not a very attractive one to offer to a prospective client.

Mr. T. R. Milburn pleaded that no attempt at economy should be made at the expense of the "Journal," which was the greatest asset of the provincial members.

Mr. F. R. Hiorns spoke of the necessity for proper library provision. The public lectures at the R.I.B.A. were an important feature, as there could be no real improvement in architecture or intelligent patronage until the public were enlightened enough to distinguish between good and bad.

Mr. Walter Cave mentioned, in the course of his reply for the Board of Architectural Education, that any candidate who had his designs "turned down" could now obtain a free criticism.

Mr. John Slater said that in Canada and the United States pamphlets on the advantage of employing the services of architects were sent out broadcast. If even this could be brought home to speculative builders a great deal of good would be done. He wished it to be understood that the Practice Committee were not competent to give gratuitous legal advice.

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Professor S. D. Adshead (Vice-Chairman of the Town Planning and Housing Committee) said he thought it was hardly necessary to answer the question why they required the Committee on Housing—a subject of great importance both to architects and the public—which had only that afternoon been approved by the Council. Hitherto the housing of the people had been left to the builder, though an improvement had been apparent during the last few years. His own theory was that that improvement began with Norman Shaw's work at Bedford Park. This country was entering on a new era, and now was the time to make an effort to capture some of the town-planning work. Architects were not likely to capture much of it, but without some effort they would get none.

Mr. H. W. Burrows (Chairman of the Science Committee) claimed that a great deal of good will result from the investigations of the Science Committee. Any number of materials were being used without much knowledge. Architects had got to find out things for themselves, which could only be achieved by research.

Mr. Sydney Perks (Chairman of the Finance and House Committee), in discussing the acquisition of No. 10 Conduit Street for £11,000, explained that it had since been let on a seven years' lease, at the end of which time the Institute would regain possession. They had also purchased land on the Maddox Street side which would enable them to almost double the area of the present gallery. He hoped it would be possible to get on with the extension in the autumn, according to Mr. Arthur Keen's plans. The item of £204 for "The Designers of Our Buildings" was not payment to the author, but payment for the printing of that book. The Committee received constant appeals to assist worthy objects, but their view was to benefit first those members who paid their subscriptions. They wanted to improve their premises and "Journal," to start some scheme of getting into touch with provincial societies, and to give the members a little more for their money than they get at present. It would be necessary to try and save money for building in seven years' time. When the debt had been cleared off and a few necessary thousand pounds spent on the library they could then talk of giving money away. They must be just before being generous.

Mr. J. Alan Slater (Joint Hon. Secretary of the Literature Committee) mentioned the efforts that had been made to improve the conditions of the Library, including a scheme to establish it in the present galleries and to devote the present library to meetings.

Mr. W. R. Davidge (Joint Hon. Secretary of the Housing and Town-planning Committee) mentioned that after January 1 of next year all towns of over 20,000 inhabitants must have a town-planning scheme. It was hoped architects would get their share of that work.

Mr. Henry V. Ashley (Joint Hon. Secretary of the Competitions Committee) said his Committee would be glad to receive any suggestions.

The report was approved and adopted.

A hearty vote of thanks was accorded to Mr. John Hudson (F.) and Mr. A. W. Sheppard (A.) for their services as Hon. Auditors for the past year. Mr. Hudson and Mr. Sheppard being both eligible and willing to be nominated as Hon. Auditors for the current year, these gentlemen were so nominated.

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MAY 4, 1872.

"The Rumours Afloat" as to the employment of Mr. Burges for the proposed completion of St. Paul's Cathedral have certainly, to our knowledge, no foundation. Mr. Burges will probably act in co-operation with Mr. Penrose, but the latter gentleman still remains in his old position as architect to the Cathedral.

Mr. Alan E. Munby, F.R.I.B.A., has been appointed architect for the science buildings about to be erected at Bangor University College in connection with the North Wales Heroes' Memorial.

R.I.B.A. Unification and Registration Committee.

A meeting of this Committee was held on Monday afternoon last, Mr. Paul Waterhouse, President, in the chair. The attendance numbered between thirty and forty.

Letters regretting inability to attend were received from the following: Messrs. A. N. Paterson (Glasgow), A. H. Hind (Leicester), G. B. Mitchell (Aberdeen), A. L. Roberts (Winchester), N. D. Sheffield, Maurice E. Webb, C. B. Flockton (Sheffield), H. G. Watkins (Nottingham), — Payne.

Mr. E. J. Sadgrove, President of the Society of Architects, was appointed Vice-Chairman.

The business before the meeting was to consider a draft statement on Unification and Registration which had been prepared by a sub-committee of four, with a view to immediate publication and circulation.

Mr. Sydney Perks, from whom most of the opposition came throughout the discussion, gave notice that he had put in a Minority report for which he desired equal publicity.

The approval of the report *in toto* was proposed by Mr. Arthur Keen and seconded by Mr. H. T. Buckland, but was formally opposed by Mr. J. E. Yerbury (on behalf of the Licentiates), whose amendment for referring back to the sub-committee was seconded by Mr. Perks. Mr. Yerbury desired to see introduced clearer phraseology and more convincing arguments—as, for instance, those set forth in the Licentiates' Committee's report. Mr. Perks disapproved of the statement from A to Z, both as to its grammar and its principles.

Mr. Paul Waterhouse explained that it had been necessary for the committee to delay its expression of its own wishes and views as to what it meant by "Unification." The time had now come to answer the appeals for a definite exposition. So far the views of the opponents to Unification had been put before their little professional world more fully than those of its adherents. A sub-committee therefore set itself very earnestly to the task of seeing what could be done in the way of a clear statement. This was a difficult task, as among a body of men intensely interested in the subject each member could have produced a different draft. Their object had been to make it perfectly clear what the committee meant when they talked of Unification.

Mr. E. J. Sadgrove, speaking as one of the four who had drafted the document, explained that it had to be as brief as possible. Their statement, in his opinion, contained all that mattered as to Unification for the purpose of obtaining an opinion. The rest of the profession was waiting for what the R.I.B.A. Unification Committee intended to say. The point they wished to get home was: "This is Unification. Will you have it? Is it what you want?" To those in opposition to the proposals he would say: "If you want Registration without Unification you will never get it."

Mr. Yerbury was afraid it would be sending out something which nobody would understand. Major H. C. Corlette pleaded that the statement should be as definite as possible.

Mr. Arthur Keen said the last thing they wanted was to prolong the controversy. The statement was expected to enlighten those numerous members who were still in the dark as to what was meant by Unification.

Mr. C. McArthur Butler thought it would be much wiser to refer the statement back to a sub-committee.

Eventually the statement was considered clause by clause, and certain amendments were carried. In its final form it is as follows:—

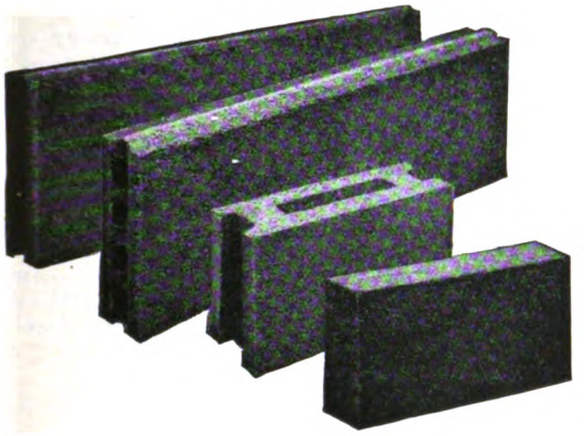
UNIFICATION.

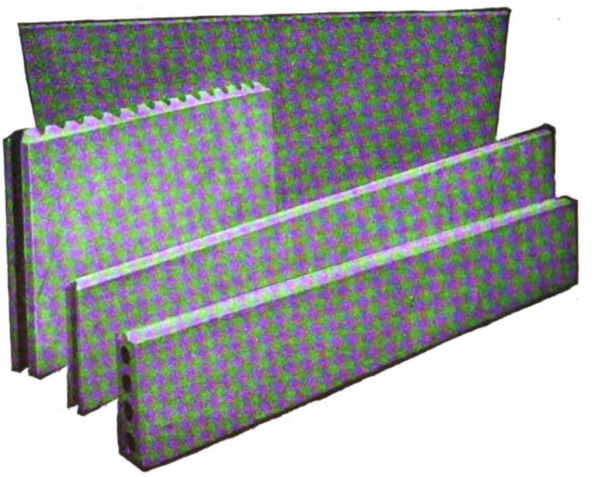
The following statement on Unification in the architectural profession is issued by the Committee on Unification and Registration:—

Unification means a grouping into an organic whole within the Royal Institute of British Architects of (*a*) the

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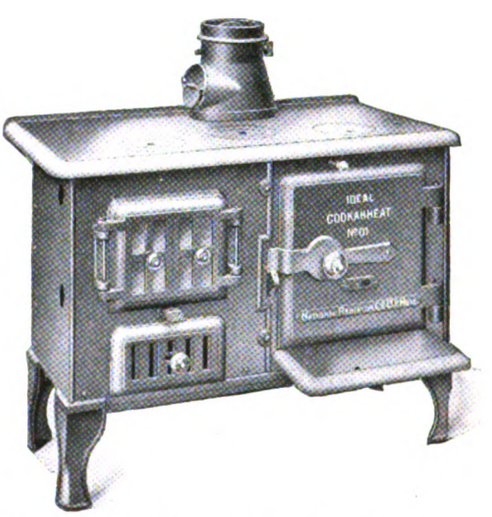
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entire (professional) member-roll of the Society of Architects which will cease to exist as a separate body; (*b*) the entire (professional) member-roll of the Architectural Association and of the Allied Societies of the Royal Institute (each Society maintaining its name and entity); (*c*) architects, properly so-called, under proper conditions of qualification, who are at present unattached to professional societies.

(N.B.—Until Unification has statutory force, in the form of Registration, the inclusion of these unattached architects will necessarily be dependent on the option of these architects themselves, who, it may be premised, will not decline the advantages which inclusion will obviously offer.)

Details of the status in the R.I.B.A. to which the present grades of membership in the Society of Architects would be admitted, though not yet precisely defined, are already provisionally outlined to the satisfaction of representatives of the Councils of both bodies. The admission of unattached architects, while conferring on them such a status as will offer them most valuable advantages, will not derogate from the prestige and interest of those existing members whose membership of the R.I.B.A. is based on qualification by examination or other tests.

The advocates of constructive Unification never lose sight for a moment of the relation of this movement to Registration. They regard Unification as a preliminary step without which Registration is a mere vision and as a stage in the evolution of Registration which will add incalculable value and force to Registration when finally the latter is obtained. In other words, Unification has a double value. It is an end in itself—actually within grasp, and well worth attainment even if Registration be remote.

And besides this it is a means, and an essential means, to Registration.

Unification may reasonably be looked on as the method whereby every worthy and bona-fide architect in the United Kingdom:

1. Can actually and actively co-operate with his professional *confrères* in the advancement of architecture by a direct interest in the R.I.B.A., and thereby assist the laudable objects for which the R.I.B.A. was founded.
2. Can have a direct voice and share in the education, management, and control of the profession.
3. Can contribute to and share in the advantages to be gained from a profession united in, represented and led by a single body of properly constituted authority and unquestionable pre-eminence, such advantages including, *inter alia*, improved prospects of obtaining Statutory Registration.

Unification does not involve

The inclusion within the ranks of the R.I.B.A. of any person engaged in any other vocation than that of an architect or architect and surveyor.

Unification is desirable:

1. Because the Institute so constituted would become numerically larger than any existing bodies and thereby proportionately more influential, thus enabling the practical removal of many of the now prevalent abuses and anomalies of practice by the more extended application of the charter, by-laws, regulations, and edicts of the R.I.B.A., and in particular of its code of professional practice and of its scale of professional charges.

2. Because the R.I.B.A. would be strengthened by the direct interests and opinions of those trained outside, with whom it is at present only remotely in touch.

3. Because it will put the re-formed R.I.B.A. in a position to speak indisputably and conclusively for the profession as a whole, which legal advice has indicated as an essential position to secure the concurrence of Parliament to the terms of any Registration Bill promoted by the R.I.B.A.

4. Because it will enable the R.I.B.A. the better to carry out the objects for which it was founded; and the work which it has initiated and is fostering for the improved professional position of architects by the wider field wherein its activities can be employed, and will thus materially strengthen the power of the R.I.B.A., enhance the value of its work, and raise its prestige.

5. Because it will provide facilities for—

(*a*) The provision of an organisation whereby speedy and effective action can be taken on all matters of professional interest and importance.

(*b*) The expression of the decision and opinion of the whole profession in agreement or difference with the Government and its Departments, County Councils, and all other Public Authorities, Companies, and Bodies.

(*c*) The support, protection, and defence of the professional interests of architects and the establishment and maintenance of proper etiquette within the profession.

(*d*) The promotion of systematic architectural education and the Statutory Registration of Architects.

(*e*) The maintenance of proper relations with other organisations in all matters relating to building.

(*f*) The education of the public to an appreciation of architecture by press publicity and other means.

(*g*) The undertaking of all other lawful acts required to carry out the foregoing objects.

By rejection of Unification, architects would be reconciling themselves to an indefinite continuance of the present-day conditions and fratricidal polemics of the last generation, by which opportunities for improving the architect's lot have had to be ignored or have been lost, and the cause of architecture has suffered accordingly.

It is obviously of vast importance to the entire profession that when Registration is at last achieved, it shall find the architectural profession in a state of organised unity.

Any policy advocating Registration without prior Unification:

1. Might deprive the profession of the advantages to be gained by Unification.

2. Does not assure that the R.I.B.A. will remain the authority controlling the profession.

3. Makes it certain that the R.I.B.A. will either be:

(*a*) Relegated to an inferior and subordinate position, or,

(*b*) Subjected by Parliament to an overhaul of its constitution and Charter rights, when it will have necessarily but little say as to the manner in which outside architects are to be admitted to it.

PAUL WATERHOUSE, President of the Royal Institute of British Architects, *Chairman.*

EDWIN J. SADGROVE, President of the Society of Architects, *Vice-Chairman.*

ARTHUR KEEN, Hon. Secretary, R.I.B.A., *Hon. Secretary.*

[A Minority Statement, signed by certain members of the Committee, will be issued as soon as possible.]

The monthly meeting of the Council of the Institute of Scottish Architects was held at 117 George Street, Edinburgh, on April 27, Mr. A. G. Heiton, Perth, vice-president, in the chair. It was agreed to forward certain nominations for honorary associateship to the R.I.B.A. Information was received from the Glasgow chapter in connection with the proposed new building code. Election was made of five associates from the Edinburgh chapter, and applications for membership were submitted for one fellow, four associates, and seven students. It was decided to make arrangements for the sending of exhibits from Scotland to the Exhibition of British Architecture proposed to be held in London in November and December. It was intimated that the Glasgow chapter were making arrangements for an exhibition in June and July of the American drawings and plans which have been on exhibition in London under the auspices of the R.I.B.A. Details were submitted of the arrangements for the annual convention to be held on June 16 in Inverness.

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Lighting of Public Buildings.

At a recent meeting of the Illuminating Engineering Society held at the Houses of the Royal Society of Arts, Adelphi, an account was given of some interesting experiments carried out by representatives of the National Physical Laboratory. They were carried out at the request of H.M. Office of Works for information which would assist them in drawing up a specification for lighting installations at the new building of the Ministry of Pensions at Acton. The particular problem under investigation was the lighting of very large rooms which it was anticipated would be used for the work of large numbers of clerical staff.

The semi-direct, which was considered to be the best method of lighting such rooms, was adopted in the experiments which aimed at providing an initial average illumination over the whole room of about 4 foot-candles.

For the purposes of the experiments one-half of one of the large rooms at Acton, the dimensions of which are 170 ft. by 37 ft. 6 in. by 12 ft. 6 in., was prepared and wired by H.M. Office of Works for the installation of various lighting systems. Several manufacturers placed selections of their fittings at the disposal of H.M.O.W. and the N.P.L., while H.M.O.W. carried out decoration schemes suggested by the N.P.L.

The structural details imposed important restrictions on the arrangement and choice of fittings. The dimensions were 80 ft. by 37 ft. 6 in. by 12 ft. 6 in., and the ceiling was crossed by a series of girders 15 in. deep, which divided the room into eight bays each 10 ft. wide. In addition, each girder was supported by a vertical stanchion 9 in. wide, at a distance of 15 ft. 6 in. from one of the long walls. If due regard to symmetry were observed, the division of the ceiling in the manner indicated limited very much the freedom of arrangement of the various fittings, while the depth of the girders below the ceiling prevented the use of fittings actually on the ceiling, or even the placing of them at such heights as might have been desirable, if a clear expanse of ceiling had been available.

The windows (8 ft. 6 in. by 5 ft.), reaching to within about 15 in. of the ceiling, were at 10-ft. centres in the middle of each bay. For the test they were covered with black boards representing the conditions existing when either no blinds at all or black blinds are used. White cloths were also provided to imitate the behaviour of light-coloured blinds. Experiments were made with and without these cloths, so as to evaluate the effect of blinds on the illumination.

The working plane was taken at a height of 2 ft. 6 in. from the floor. In certain rooms at Acton the height is only 11 ft. 6 in. Information likely to be of value in selecting installations for these rooms was obtained by taking measurements at a height of 3 ft. 6 in. The justification for this lies in the fact that the portions of the walls and floor below the working plane exert little effect on its illumination. In the most favourable case possible with white walls and very light floor, this effect is believed to be less than 5 per cent., while in the cases under consideration the floor was fairly dark having a reflection ratio of about 35 per cent.

Illumination measurements with either a lumeter or luxometer were made along selected lines in the room. Twenty-six observations were taken in each row and, in addition, twelve observations in each of two or more cross lines were taken. Later, in the course of the experiments, the arrangement of the points of observation was changed.

The average illumination over the whole room was taken as the mean of all the observations (100 or more); the total watts used in each installation were also noted. In addition, observations of surface brightness of the visible light sources, and the reflection ratios of the decorations were made.

The power supply at Acton was direct current at 230 volts, and was subject to considerable variation from minute to minute. It was found necessary in the latter half of the experiments to have someone continuously adjusting the voltage. The lamps used were straight from stock. Tests on a selection of those used, which may have burned anything up to fifty hours, were made at the end of the experiments and their efficiencies and polar curves determined.

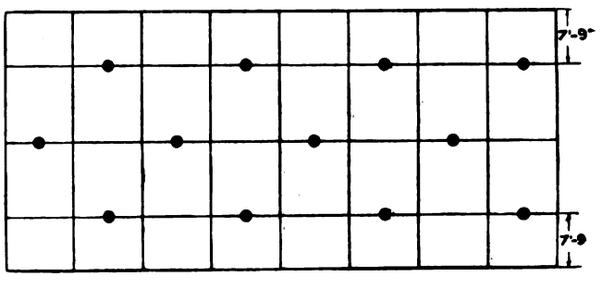
There were four different schemes of decoration. Features common to each were a distempered white ceiling with its reflection ratio of 80 per cent. and dirty white blinds with a reflection ratio of 55 per cent. The walls varied from a white distemper having a reflection ratio of 70 per cent. to a surface with a top frieze in white (80 per cent. reflection), dado in bluish grey (25 per cent. reflection), and the main portion in buff (42 per cent.).

The authors of the paper state that it is difficult to draw conclusions from a series of lighting installations unless it is known definitely what are the precise conditions under which the conclusions have to be applied. A number of installations have been put up in the experimental room, and measurements of illumination have been correlated with the power consumption. In addition to the cost of power such considerations as the uniformity of the illumination, cost of maintenance of the decoration, cost of initial installation, etc., have to be taken into account.

With the kind of ceiling available at Acton, it was difficult to say immediately whether it would be better to utilise fittings in which an artificial ceiling, i.e., an over reflector, was provided, or to make the best possible use of the existing ceiling. On comparing the fittings which use over-reflectors and those which do not, the tests indicate that the former are usually at a slight disadvantage. In this connection the values of the watts per square foot for 3 foot-candles illumination should be compared with the utilisation co-efficients of the various fittings.

The tests indicate that the effect of light-coloured blinds as compared with dark-coloured blinds—or what is practically the same thing, no blinds at all—is not unimportant when light-coloured decorations are used. The difference between the average illuminations was of the order of 7 per cent. With darker decorations, where considerations of upkeep have resulted in the decision not to pay too much attention to the reflection ratio of the walls, this effect is not so large.

As regards the rooms having a ceiling height of 11 ft. 6 in., the tests show that with the same decoration the difference is mainly one of uniformity, as would be expected. This difference can be partly eliminated by raising the fittings in the lower rooms, though the appearance of the ceiling may not be improved by such a change.



As a result of considering installation costs, and the cost of current, renewals and decorations over a period of five years, H.M. Office of Works were led to the adoption of the installation scheme described as Installation II. in conjunction with the following decoration scheme:—

Ceiling, white; 80 per cent. reflection ratio.

Walls, light buff; 60 per cent. reflection ratio.

Frieze, white, 12 in. deep; 80 per cent. reflection ratio.

In this installation twelve semi-indirect 14 in. opal bowls with 150 watt lamps were used. Their arrangement is shown in the accompanying illustration. The average illumination was found to be 4.1 foot-candles

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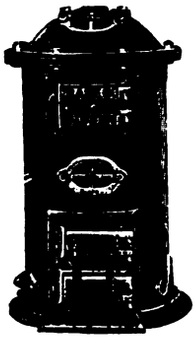
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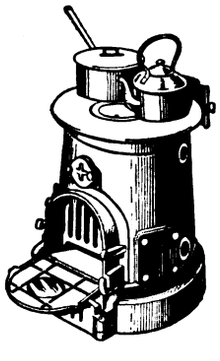
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for an expenditure of 1,900 watts. The ceiling still showed shadow effects, but they were not so objectionable as in the last installation. The effect of raising the lamps in the bowls was to spread the light more uniformly over the ceiling. The walls exhibited a frieze of brighter illumination from about 2 ft. 6 in. from the ceiling upwards. No pronounced shadows were caused by the vertical stanchions.

Nottingham and Derby Architectural Society.

The fifty-ninth annual meeting of the Nottingham and Derby Architectural Society was held last week at Nottingham. Mr. A. Eaton, M.S.A. (Derby), presided.

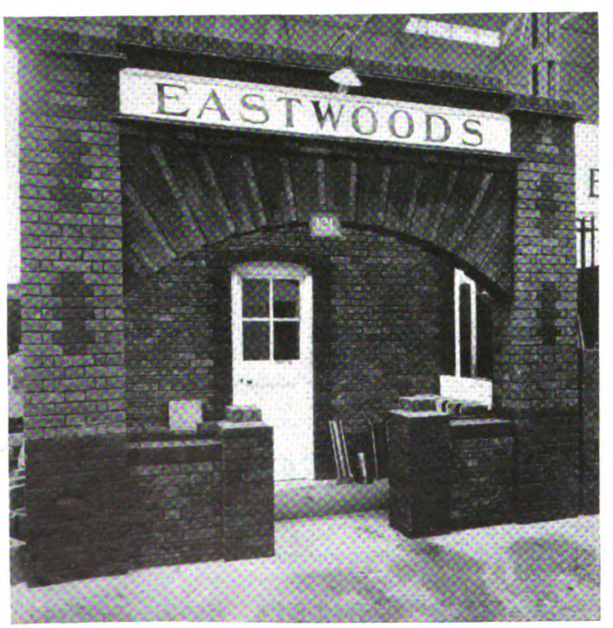
The Council reported a membership of 119. Three new members were elected at the meeting. In conjunction with other local artistic societies, the Council had formed a Provisional Committee to inaugurate a Civic Society for Nottingham. The Council had been in constant communication with the master builders and building trades operatives, and were pleased to record that the excessive costs of building were gradually but surely coming down, due largely, in their opinion, to the release of Government control restrictions. The financial position was excellent, showing an increased balance of over £55 on the year's working. The reserve fund had also been augmented.

The following officers were elected: President, Mr. A. Eaton; Vice-President, Mr. E. H. Heazell; Council, Messrs. H. G. Watkin, E. R. Sutton, R. Evans, P. H. Currey, W. B. Savidge, H. H. Goodall, G. M. Eaton, C. H. Calvert, and H. P. Gill; Hon. Secretary and Treasurer, Mr. F. M. Royle.

The President distributed the students' prizes, as follows: Competition designs, 1, Mr. Rosher; 2, Mr. King; 3, divided between Messrs. Cowlishaw and Baldry. Measured drawings, 1, Mr. Hasledine; 2, Mr. Baldry; 3, Mr. Tuxford.

Messrs. Eastwoods' Stand, Olympia.

The building erected by Messrs. Eastwoods, Ltd., Belvedere Road, Lambeth, S.E. 1, for the recent Building Exhibition, and which we here illustrate, was wholly constructed of materials of their own manufacture, and was situated in the annexe. It was designed to display their well-known bricks massed in bulk in actual work. The main façade consisted of a segmental arch with pier abutments, the bricks themselves being Eastwoods' Conyer machine-



made stocks and red facings. The inside was faced with their Shoeburyness hand-made stocks and red-brick dressings. Another elevation had a segmental arch in Eastwoods' Halstow machine-made stocks. The flank dwarf walls were built with Eastwoods' flettons. The interior of the central structure displayed their second and third quality stocks, fletton bricks, and concrete partition slabs. The company are also manufacturers of land drain-pipes, breeze bricks, &c., and samples of these could be seen at the stand. There was also a general exhibit of building material to show the varied selection of goods in which the company trade. The company have wharves and depôts all over London.

General.

Mr. William Bell, assistant borough engineer and surveyor to Sunderland Corporation, has been appointed assistant borough engineer and surveyor to the Metropolitan Borough of Camberwell, at a salary of £500, rising to £600.

An agreement has been come to between the Royal Academy Council and the Tate Gallery trustees concerning the purchase of pictures under the terms of the Chantrey Treasury and it has received the consent of the Treasury and the Chantrey trustees.

The Carlisle Corporation Health Committee last week accepted the tender of Messrs. M. Muir and Company, Kilmarnock, amounting to £21,701, for the sewering of Upperby, Blackhall, and Bellevue, three of the outlying areas taken over by the city.

At the annual vestry meeting for the Church of St Woolos, Newport, the Archdeacon of Monmouth remarked that St. Woolos now had the status of a pro-cathedral, but he hoped that before long the opportunity would be embraced by wealthy men to inaugurate a fund for the erection of a permanent cathedral. An edifice worthy of the purpose would cost probably about one million pounds.

The National Housing and Town-planning Council are sending to all local authorities in England and Wales a questionnaire on the housing needs of their particular districts. The questionnaire is prefaced by a note which recalls that in the debate in the House of Commons on March 13 the Minister of Health stated that the figures submitted by the local authorities at the close of 1919 could not be taken "seriously." The National Council add that "it is therefore clearly desirable that the views of the Housing Committees should be made the subject of a special memorandum."

Sir Alfred Mond last week gave the following statistics in regard to houses building:—Completed by local authorities, private builders under subsidy and State-aided, 130,375. In course of construction by local authorities and public utility societies, 52,417. Authorised but not commenced, 31,151. Preliminary certificates issued to private builders, 12,295. It was not, he said, the intention of the Government to proceed with further houses beyond the number stated last summer, but local authorities were at liberty to build houses outside of the existing schemes.

The Court of Governors of the North Wales University College, Bangor, hold the view that Welsh architects are required, and at their half-yearly meeting at Bangor it was decided to urge the University Council to follow up their promise by having the school established at Bangor. Dr. Lloyd Owen, contended that such a school was wanted was proved by the fact that the memorial committee had utterly failed to get a Welshman as architect of the new science buildings. Sir Harry Reichel pointed out that for financial reasons it was quite premature to talk of establishing a school of architecture.

Pell's United Asbestos Co., Ltd., will hold their thirty-fourth ordinary general meeting at the Cannon Street Hotel on May 11. The directors have resolved, in view of the audited accounts to December 31, 1921, and after providing for income tax and corporation profits tax, to recommend to the shareholders the payment of a balance dividend of 1s. 6d. per share on the ordinary shares of the company which, with the interim dividend paid in October last, makes a total distribution of 10 per cent. for the year. The amount to be placed to reserve is £8,000. The amount to be carried forward is £34,013 9s. 1d.

Many architects have received help from the Professional Classes Aid Council. Now the Council are compelled, owing to lack of funds, to refuse applications for assistance with the education of children, grants in illness and convalescence, and other forms of help. Please send a donation to help fellow professional men in their needs to the Professional Classes Aid Council (registered under the War Charities Act, 1916), 251 Brompton Road, London, S.W. 3.

The Dorland Agency Ltd., 16 Regent Street, London, S.W., have published a Zone and Population Map of the British Isles, giving the census figures of June 1921. Great Britain is divided up into four overlapping circles, which have their centres in London, Bristol, Manchester, and Hull, each of which has itself four circles struck in lengthening radii of twenty-five miles. The total population within each radius is given, and it appears that the sixteen millions within 100 miles of Manchester are over three millions in advance of the total for any of the other centres. A rigorous selection has been made of the smaller towns so as to prevent overcrowding the map with names. Copies of the map may be obtained at 1s. 3d. each, covering cost of cylinder, packing, postage, &c.

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Factors Determining Style in Design.

WHAT we have alluded to as the increasing force of individualism in modern life coupled with the greatly increased knowledge of the past, which is now the common heritage of all, have their effect both in determining style or individual designs, and also in making a return to tradition in architectural design as a whole more and more unlikely. Few architects can be said to be so much imbued with the conviction that one special type should be adhered to as to mould their designs in any one mode only, and were they to be so the demands of their clients would usually militate against their intention. There is no vogue where a house is concerned, and most architects will be willing to give their clients a symmetrical or an asymmetrical rendering, as a site may suggest to them one or the other is most suitable, or as their client's wishes may dictate. But combined with this there is a general tendency once a type has been chosen to adhere more nearly to conventions established at some former time in work of a similar character. And combined with this there is certainly a greater insistence on convenient planning and arrangements which make for comfortable and economical service. The English house has more and more become a sort of prototype which with modifications finds acceptance abroad both on the Continent and in America wherever a country-house is under consideration. The French country-house is, it is true, more "stylistic" and more ostentatious for that reason than its English parallel, but it is not based on as close a study of the proportions of past work; but these differences are in process of disappearing, while in America the differences are much less pronounced and usually confined to the more extensive use of verandahs and sun rooms and greater convenience in the arrangement of bath-rooms, cupboards, and service accommodation. On the other hand, foreign influence is more and more pronounced in the contemporary design of our town buildings, which, especially those of flats and of buildings devoted to purposes of pleasure, like the cinema and theatre, show year by year an increased tendency to borrow from contemporary French renderings of the same character. And if French influence is apparent in these cases, that of American design is as markedly evident in the design of our great business premises, and to a less extent in that of our public buildings. But whereas some years ago good designers would introduce detail which showed the source which inspired their ideas, similar work to-day shows a much closer familiarity with type and a far closer adherence to style. In our churches, too, the type of building which remains less influenced by modern conditions than any other, we may note a closer attention to the mediæval prototypes which inspire designers than before. Even the dissenting chapels are fast becoming close variants of the church type, and not, as they were a century ago, buildings in the traditional vernacular of the day, suggesting secular rather than ecclesiastical precedent.

So in all contemporary design two prevailing indications are evident—a choice of style for different subjects, which is becoming more and more eclectic rather than traditional or national, and a far closer attention to detail based on a careful study of traditional prototypes of different characters. We have not a universal architectural language yet, but the speech of every people is becoming so much enlarged by the introduction of foreign words and expressions as to be rapidly approximating to a sort of architectural Esperanto.

It is true that there are among us, both here and in every country abroad, a number of individual designers, who, like Mr. Sullivan of Chicago, the exponents of l'Art Nouveau on the Continent, and stray individual designers here, are trying to make out a case for the ignoring of all traditions of the past. The effort and attempt is perennial, but for the most part has little general effect on the course of the architectural tide for the reason that the new forms, introduced with the intention of expressing the character of an age, have little apparent meaning to any but their authors, and for the most part little or no intrinsic merit of their own. Most of us have tried at some time or other to design something on novel lines, and had recourse to a piece of india-rubber to obliterate the forms we have painfully evolved. In the game of chess we have a series of pieces which serve for an infinite variety of games, and have no use for any extension of the board or the addition of pieces with new and varied moves.

In a like manner it would seem that we have in past traditions of architecture all the detail we require for any possible expression of our wants, and as if our efforts, like those of a chess player, should be confined to using them to express and suit whatever purpose we may wish in the world of to-day. We are sometimes blamed by the public for our failure to give them some new thing, but the complaint may well be as unreasonable as one addressed to an Englishman or Frenchman on the subject of the growth of the language used by them. Language has undoubtedly grown and changed through many early ages, but is now complete enough to give us all the elasticity of expression we need, so that the introduction of fresh words and idioms is hardly apparent, and so it would seem is the case with architectural design. We have forms and types enough to serve our purpose, and further progress depends not on the discovery and addition of what is new, but the better use of what we have. That architecture should become more international in its character is in a sense to be regretted, for local expression and vernacular are full of interest, but in a world which has become smaller age by age, with increasing facilities, the international character of architectural expression is bound to be brought about, for we cannot stay the hands of Time or do away with the effect of influences which are universal.

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Illustrations.

NEW BUILDINGS IN FOUNTAIN COURT FOR THE NATIONAL PROVINCIAL AND UNION BANK OF ENGLAND. PAUL WATERHOUSE, Architect.

PROPOSED HOUSE, GLOUCESTERSHIRE. A. N. PRENTICE, Architect.

HOUSE AT CROOKSBURY HILL. HORACE FIELD, Architect.

Notes and Comments.

The R.I.B.A. Elections.

The large list of candidates who are standing for election for the R.I.B.A. Council and its committees are evidence of the division of opinion which exists among the members on the subject of professional policy. As we have frequently said, we look upon Registration in the sense that it is understood by its supporters as being quite impracticable, and we regard its supporters as being as surely destined to disappointment as those well-meaning enthusiasts who look forward to doing profitable trade with the Bolshevists. The situation seems to be summed up in a sentence. If we can secure the confidence of our clients Registration is unnecessary, if not it will be of no real assistance to us. These two reasons seem to us to be quite sufficient to prevent a well-balanced man from sacrificing anything tangible and useful in an attempt to obtain the impossible. We share the wish often expressed by many that our professional councils could be freed from professional-political issues, but there seems to us only one way in which this desirable end can be obtained, which is by the use of a referendum in dealing with such issues. If a referendum of the members of the Institute could be taken on any burning controversial question by following a certain course of procedure, and if the result of such a referendum bound the Council of the R.I.B.A. whatever the view of its members might be, there would be an end to the inclination to support men not from a sense of their intrinsic merits, but because they were supporters of given measures and this end seems to us to be desirable.

A Travelling Theatre.

Mr. C. B. Cochran has been working for the last year in conjunction with a French architect who has designed a travelling theatre which can be made to seat 8,000 people, but can be contracted to seat 2,000. He says that, if he cannot get a suitable hall for any particular production in the West-End, he may go to the outskirts of London. We gather from this and from the fact that the theatre can be erected in twelve hours that it is not a temporary building, but a system of fitting up a theatrical production within an existing building, and, if so, we should be disposed to think that its use would be rather severely limited, as there are few halls to be had for the asking which would seat as many as 8,000 people. The theatre is to be steam-heated, and a small company for carrying out the scheme is to be registered in France during the next few weeks. We shall be greatly interested to hear more of this novel and exceptional proposal, and especially as to how the stringent local regulations in force in most districts will be met by the promoters.

Higher Buildings.

Mr. Delissa Joseph is still pursuing his crusade for higher buildings, and in a letter to "The Times" denies that the movement is dead. In trying to make out his case, he argues that, if American architects have made beautiful structures of skyscrapers, English architects can do so where buildings of 150 ft. high only are in question. This seems to us to be hardly the point. Few architects would contend that a high building was an impossible or even a very difficult problem to solve from the point of view of design. Nor would they say that the owners of specially situated sites would not be pleased to have more latitude in the matter of heights. But what they do urge is this, that the erection of a number of buildings higher than those at present permitted would not improve the appearance of London as a whole or conduce to the greater comfort, health, and convenience of its inhabitants. These, which are the essential considerations, are not dealt with by Mr. Delissa Joseph. The omission is significant.

Simplification.

A movement has been inaugurated in the United States for the simplification of manufacturing processes by the elimination of useless variety, and the movement is receiving the attention and support of the Department of Commerce at Washington. As an example in paving bricks it is proposed to eliminate 65 per cent. of the varieties made by agreement between manufacturers and users, the actual reduction being from sixty-six varieties to twenty. The Metallic Bedstead Alliance and the National Association of Spring Bed Manufacturers have taken steps which enable one firm to reduce a range of 206 varieties of full-width bed springs to twenty-eight, while the Cover Manufacturers' Association have reduced cover paper sizes from thirteen to two.

The course followed was to eliminate styles and varieties, to standardise operations and practices, to an extent which is calculated to have saved the country tens of millions. The report of the War Industries Board, working on annual savings, if the war had continued, gives some extraordinary examples of savings. They included 53,000,000 yards of woollens, by reducing the size of lengths and eliminating adornments; 49,617 days of labour, 30,380 gallons of varnish, 125,300 lb. of tissue paper, 74,750 lb. of starch, the dyeing of 29,250,272 lb. of material, 29,012,600 cartons, and the use of 5,245,300 square feet of shipping, by cutting out 5,500 styles of rubber footwear; 2,400 varieties of agricultural implements; 750 tons of steel, by cutting out fancy bars on bicycles; 1,000,000 feet of rubber hose, by simplifying the manufacture of vacuum cleaners; and 395 tons of steel and 7 tons of pig iron by substitutions in the making of typewriter ribbons.

Such a movement must do immense good in reducing prices while harming no one, for such things are made by machinery and there can be no advantage to the individual workers' individuality in having to work a greater number of complicated and expensive machines. In the building trades the number of slightly varying sizes of grates might be reduced with a great advantage of convenience to all, and it is to be hoped that some similar action will be taken here.

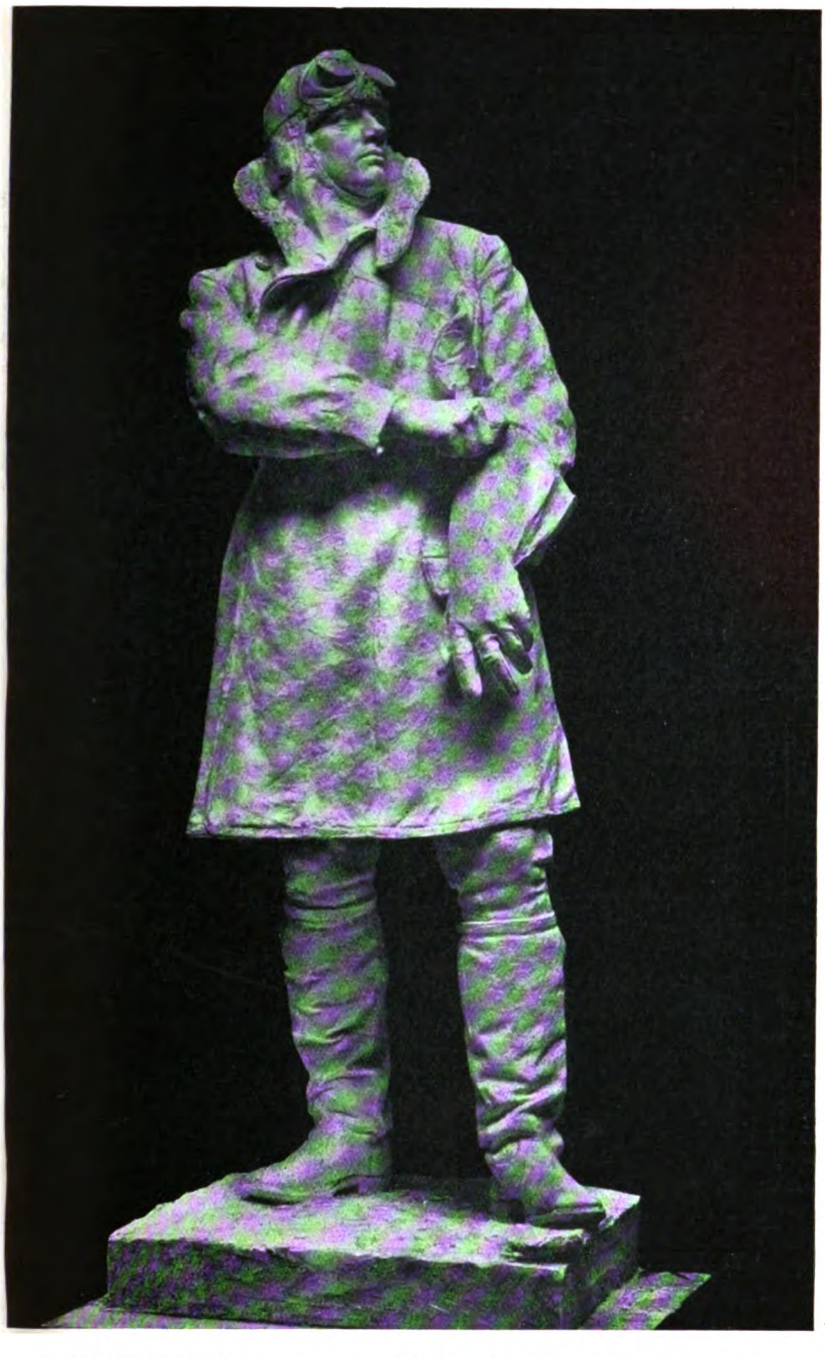
The Wrexham and East Denbighshire War Memorial Hospital Committee have been informed that the trustees of the late Mr. John Jones will contribute half of the revised cost of building an infirmary at Roseneath. The new building, which is intended to supersede the present one in Regent Street, is to be erected at a cost of £65,000.

The final arrangements for the International Theatre Exhibition, which is to be held at the Victoria and Albert Museum with the co-operation of the British Drama League, the Actors' Association, and other societies and individuals connected with the stage, are now being completed. The whole of the exhibits from the recent Exhibition at Amsterdam have been received at the Museum, and considerable additions have been made to the British, American, French, Italian, and other sections. A dark-room is being fitted up to contain about 100 lighted models of theatre scenes. The catalogue is now in course of preparation, and it is hoped that the Exhibition will be opened on June 1 or 2.

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Sculpture at the Royal Academy, 1922.

By Selwyn Brinton, M.A.



"AIRMAN." By Hermon Cawthra, Sculptor. One of the Figures for the Bootle War Memorial. [*Royal Academy*, 1922.

One of the least satisfactory features in this year's Academy—as I have already had occasion to notice in these columns—is that of the sculpture, which compares unfavourably both with the paintings and the architecture. Sculpture is, in any case under modern conditions, a delicate growth. There are certain plants which, as any gardener knows, will thrive outside, in spite of weather conditions; others, often specially beautiful, which need attention and a certain amount of protection to really flourish. In the United States and in Italy—where the Government, though not rich, has done a good deal—that attention has been given, with good results; in England the plant is left to struggle through as best it can, though a welcome sign is the proposed exhibition of sculpture and decorative art at Burlington House early in next year, which I have already noted to my readers.

It was really time that something was done, for what could be more lamentable than the display offered this year in the Central Gallery, which ought to be the *locale* of the choicest pieces we can produce. The natural opportunity offered by the charming shape of this room for a good central piece is, for some unexplained reason, thrown away; instead, we have what one well-known critic has aptly called "rows of riflemen in campaigning kit, which turn this Central Hall into a veritable barracks yard." I myself counted nine of these figures, in trench helmets and full marching kit—including one gallant "Poilu"—and mostly with fixed bayonets and generally truculent aspect. Anything more depressing than the Central Hall under these conditions can scarcely be imagined, and it might be suggested that the perils of war are actually present, for a friend of mine, sitting down beside me hastily, very nearly became acquainted with the business end of a bayonet.

In front of us, to crown our cup of suffering, was W. Reynolds-Stephens's "Fame," which I observe is designed for a war memorial for Hongkong. Here a small "Tommy" is seen to be emergent from a laurel-wreath nearly as large as himself, while behind him stands, in a stiff attitude, an upright and forbidding looking female. Perhaps she may be the Nemesis which sometimes awaits our best efforts to command public approval; but we feel that, if this be fame, there is much to be said for contented obscurity. Not much better is the Egyptian figure—very far from the monumental dignity of the art of Egypt—near it, who, under the title "Sic transit gloria mundi," for some unexplained reason is holding a nude young lady on his knees, though seemingly quite oblivious of her existence: it is fair to add that in this latter's figure Mr. Blundstone shows correct modelling. A really finely handled nude, treated with a certain *bravura*, in this room is Alfred Oakley's "Ionic," the figure being set above a fragment of an Ionic capital; and John Course's sundial in lead of "Day and Night," with two winged figures resting over the dial, is charming, while Percy Bentham's bronze group of "Fisherman and Nymph" deserves mention.

We come now to the Lecture Room, and, taking the left, pause first before Henry Poole's "Sketch design for the Kitchener memorial in St. Paul's Cathedral": near this is a very charming portrait-head in wax by the late Lady Feodora Gleichen, tender both in treatment and feeling. I noticed in this Academy the work of Harold Brownsword, who, as last year, showed a portrait-bust, this time of Mrs. Hamilton Irving, and another in bronze of Mrs. Rockey, which I liked especially; and I will mention next the beautiful casket in silver and bronze by that fine craftsman, Alwyn Carr, which was designed by him for his comrades of the Artists' Rifles for presentation to their retiring Colonel, H. A. R. May, C.B., its special purpose being to hold the Roll of Honour of this gallant regiment. Mr. Carr has another work exhibited here in the form of a loving cup in beaten silver, for presentation to the Federation of Fruit and Potato Trades Associations, which seems to me no less choice in design. I noticed here specially the

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beautifully chased wreath of fruit which surrounds the cup, as well as the general design: what I should venture to criticise in this craftsman's work are his figures, for neither that which surmounts this cup nor those on the casket are quite on the high level of his decorative ornament. Another delightful piece of relief work, in which the figure is effectively introduced, is the "Hand-Mirror and Brush Backs," by William Banbury.

I wish now to mention a charming little statuette, the figure of a child, "Aglint with dew, a little lovely dream," by Christine Gregory, next to the loving cup just mentioned, and very refined in its sentiment and in the actual modelling; and with this I take Nicholson Babb's marble group of "The Isle of Dreams," showing three draped female figures. What spoils, to my judgment, Alexander Leslie's bronze figure of "Phryne" is that the head, charming in feeling, is small for the well-modelled body. We come now to the wall which contains work by Gilbert Bayes ("A Bacchante" in bronze), Frederick Halnon ("Laurels of Youth"—bronze bust), Sir Thomas Brock's portrait-bust of the President, Sir Aston Webb, P.R.A., Derwent Wood's clever "Mrs. Bess Norris-Tait," and Pomeroy's statuette of "Oliver Cromwell." I must not overlook here Derwent Wood's bronze statue of F. Henry Royce, for the Rolls-Royce Works at Derby: frankly realistic and easy in pose, this is a living figure in his everyday dress and natural manner. Near this in the centre of the Lecture Room is Hermon Cawthra's "Airman," a bronze figure for the Bootle War Memorial, and at the side Sir Bertram Mackennal's model for the Memorial Tomb of the late Duke of Norfolk. Mr. Reid Dick has another of those portrait-masks in bronze which he has treated before, and a marble group under the title of "Madonna": I regret not to find anything this year by Mr. Ward Willis, whose work I have noted in previous Academies.

Lastly, I must mention three portrait-busts here by Antoine Bourdelle as work of very high significance, perhaps the most interesting being that of the well-known writer, Anatole France. Gilbert Bayes has a group of "King Cophetua meeting the Beggar Maid," which possesses a certain romantic quality, and Henry Pegram, R.A., a larger bronze group of "Hylas and the Nymphs." In the Architectural Room "The Paisley War Memorial" by Sir Robert Lorimer, A., should be seen: though I do not consider that the bronze group by Mrs. Meredith Williams which crowns it, and shows in rather crowded spacing a mediæval knight being escorted by four soldiers in modern kit and trench helmets, is quite on the level of the fine design and composition of the Memorial itself. It will be seen that, even if the sculpture shown might have, and has in previous years often, been better, there is yet plenty to interest us at Burlington House; and technically I was much attracted by the deep-cut relief in Edgar Howes's "Diana and Endymion," a treatment which seems very useful for relief seen at some little distance or from below.



"VICTORY." By JOHN ANGEL, Sculptor. Bronze Figure surmounting Exeter War Memorial. [*Royal Academy*, 1922.

London Art Galleries.

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Simultaneously with the Royal Academy, or a little earlier or later, there were opened several exhibitions in London which demand more than a passing reference. Among these were the Havard Thomas Memorial Exhibition, to which I have already alluded, the exhibition of paintings and drawings by Laura Knight at the Alpine Club Gallery, and the drawings by Joseph Farington, R.A., at Walker's Galleries; while the exhibition of Legros paintings and etchings at the Grosvenor Galleries opened last week.

The drawings and sculpture by the late J. Havard Thomas at the Leicester Galleries is of real value, as giving a fair impression of the work of a sculptor who in his lifetime was scarcely recognised as he deserved. "He aimed," says Mr. Clausen in his excellent preface to this exhibition, "at a perfection equal to that of the ancient Greeks, and was tireless in his efforts to reach it; lamenting the short time at his disposal, as he practically did everything himself . . . bringing the surface of his marble to an actual polish . . . and chasing the bronze

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"THE ISLE OF DREAMS." By S. NICHOLSON BABB, R.B.S., Sculptor. [*Royal Academy*, 1922.

to the highest point of finish and completeness." After his Paris training Havard Thomas had found his way to Italy, and made his home for a time in the south, at Naples, Capri, and Pompeii, studying the wonderful antiques, especially the bronzes, of the Naples Museum, and also the life of the peasants in the country. All this fruitful receptive period finds expression both in the drawings shown here ("Goatherd—Taormina," "Girl Leaning against a Rock," and others) and in his sculpture; for I understand that the male figure of Lycidas, which was rejected by the Royal Academy and so much discussed, belongs to this period, as well as some of his best reliefs. And Havard Thomas was a master of relief. A delightful example is his "Woman Reclining," a marble half-figure in low relief, dating 1889, or again his "Camomile Gatherer," or the "Cow and Calf," both in marble, and dating 1895.

Personally, I am not carried off my feet by the



Aglint with dew, a little lovely Dream."
CHRISTINE GREGORY, Sculptor.
[*Royal Academy*, 1922

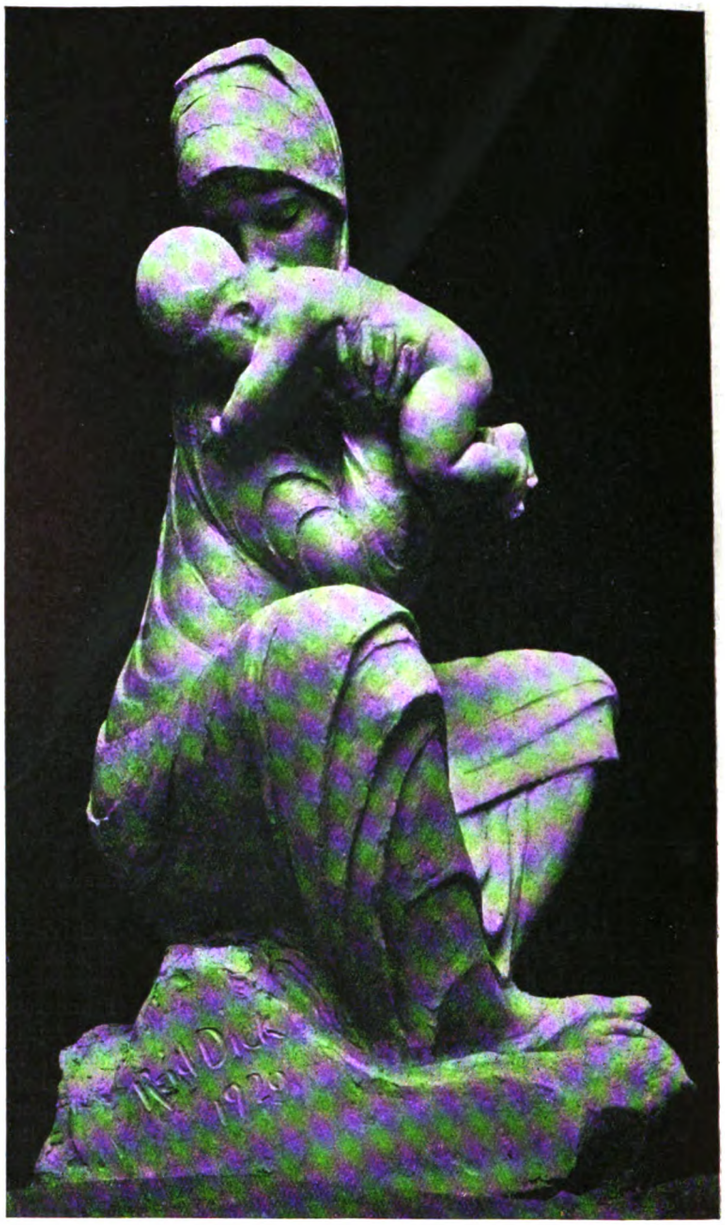


'Casket to contain Roll of Honour," in beaten silver and bronze. Wrought by the artist for his comrades of the Artists' Rifles for presentation to their retiring Colonel—H. A. R. MAY, C.B., V.D. By ALWYN C. E. CARR. [*Royal Academy*, 1922.

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"Lycidas," with his square shoulders and somewhat awkward action, and prefer the "Thyrsis," the beautiful youth playing the flute; but it must be admitted that the structure and modelling in detail of both are superb. A charmingly composed little group, which comes much later in time, is that of "Boadicea and Her Daughters" (1921); the "Castagnettes," in bronze, is a brilliant study of a dancing youth in full swing of movement.

The exhibition of paintings and drawings by Laura Knight at the Alpine Club Gallery is also not one to be missed. It may be almost said to divide itself between two classes of subject—the theatre from behind, the scenes and summer days on the sunlit Cornish coast. We commence with the stage in five studies, of which "Spessiva Tying Her Shoe" and "Prima Ballerina and Dresser" come specially close to life; and the larger canvas of "Carnoval," which, I understand, has just been acquired for the Manchester Gallery, comes into the same class of subject; then, with "Moorland" and "Autumn Sunrise," we are away for the next thirty paintings amid a delightful vision of summer days upon the Cornish coast. "Swimming" shows girls swimming in intensely blue waters, a subject and treatment of the water, rising in abrupt perspective, which often reappears in her work, in "By the Sea" and "Lamorna Harbour" here. "All artists are enviable," writes Mr. E. V. Lucas, "in that their occupation is with beauty; but Laura Knight is peculiarly so, in being free to divide her time in such an ideal way: in summer among the rocks and pools and moorlands of the Delectable Duchy, and in winter in the dressing-room of Lydia Lopokova." The artist's self-portrait, at work with palette and brushes in hand, gives a personal note to this delightful exhibition, in which the charcoal drawings on the screens, very loose but full of suggestion and life, are by no means to be overlooked.



"MADONNA," Group in Marble. By W. Reid Dick, A.R.A. [*Royal Academy*, 1922.

Two smaller exhibitions are of the sculpture of Phyllis Archibald Clay at the Twenty-One Gallery—in which I noticed a bronze, almost Chinese in feeling but with a fine sense of line, of "The Moon," as a female figure emergent from the clouds in the curve of a crescent, and a bronze of the unfortunate experience of Lot's wife at the moment of becoming "The Pillar of Salt"; and some very charming water colours and lithographs in colour of Italian scenes by Margarite Janes at "The Little Art Rooms" hard by in the Adelphi.

The Legros exhibition just opened at the Grosvenor Galleries consists of paintings, drawings, and prints taken, I believe, entirely from the collection of Frank E. Bliss. Alphonse Legros was born in 1837, at a time when the anecdotic side of art treatment flourished, and when Millet and Corot had not yet acquired public appreciation or recognition. This was when Legros was coming forward as a young painter, and he was naturally attracted by the new movement, his early painting of "L'Angelus" being strongly under Courbet's influence. This was painted in 1859, but he did not meet with success, and in 1863 Whistler transported him to England, where he remained till his death in 1911. The drawings here shown in the Large Gallery are most interesting, and what struck me particularly was the fine quality of some of the landscape, such as the "Paysage aux Trois Grands Arbres," the "Soirée d'Automne," and "Les Grands Rochers." A delightful "gold-point" study is his "Hercule Enfant et le Centaure," though some of these "gold-points," with the fine shaded lines which he perhaps had got from Leonardo, are less satisfactory, notably the "Portrait de Mlle. Marie M.," who has not sufficient back to her cranium. But Legros was a good figure draughtsman, as we see here in his "Figures Nues," as well as portraitist; though really even (perhaps most of all) in landscape a "classicist" in his feeling. In his etchings here ("Mort et le Bucheron," and others) we can trace the strong and direct influence which he exercised on this side of William Strang's art.

I am informed to-day by the National Gallery that the Trustees of the Felton Bequest have just acquired for the National Gallery of Victoria at Melbourne one of the most famous of Van Dyck's portraits in the Panshanger collection, that of Rachel de Ruvigny, Countess of Southampton. This picture will shortly leave for its new home in Australia, but in the meantime, from May 8, will be on view in the National Gallery, where it will hang in Room XXV. in the very place lately occupied by Gainsborough's "Blue Boy."

The sale of the famous Burdett-Coutts collection, which I have already alluded to in these columns, took place, as far as the paintings and drawings were concerned, last week, and, in spite of present conditions, the prices realised, which totalled for the first day's sale

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"LOVING CUP IN BEATEN SILVER." Wrought for presentation to the National Federation of Fruit and Potato Trades' Associations. By ALWYN C. E. CARR. [*Royal Academy*, 1922.

£88,739 14s., were fairly good, showing that there is always a market for the best. The magnificent three-quarter length of William Pitt, one of the finest things Hoppner ever achieved—which the Baroness had bought in 1885 for £1,000—went for £7,350; but the highest price of the day was brought by Raeburn's no less fine bust portrait of Sir Walter Scott, which in the Raeburn sale of 1877 sold for £325 10s., and now brought £9,660, and deserved it. The little Raphael predella, a very choice piece, whose companion has crossed the Atlantic for the Metropolitan, came to Messrs. Duveen for £7,350. These, with others, were paintings of absolutely exceptional merit; but on visiting the rooms one did not feel that the Baroness was always equally fortunate in her acquisitions.

S. B.

"The Architect" Fifty Years Ago.

MAY 11, 1872.

PROPOSED WIDENING OF THE POULTRY.

The taking down of St. Mildred's Church has given rise to a proposal for the widening of the Poultry, and the project, it is said, is about to be pressed on the Metropolitan Board of Works. It is urged in favour of the proposal that the great trunk line of roadway which runs through town from Notting Hill to Whitechapel, whether it is called Oxford Street, Holborn, or Poultry, is really but one continuous street, and that just at its mid-length and most densely-crowded part (the Poultry) it is contracted into about half its average width, instead of being widened out. Oxford Street is 80 feet wide, and portions of the Whitechapel Road are more than 100 feet wide; but at the Poultry, where it is alleged there is more traffic probably than in any other part of the route, the width is reduced to about 38 feet. In favour of the widening of the Poultry, it is suggested that as St. Mildred's Church, at one end of the Poultry, is about to be taken down, and at the other end a frontage of about 50 feet at the corner of Old Jewry, will very shortly be set back 13 feet, thereby widening the road very materially, that now is the most favourable time for securing the widening of the whole of the Poultry, which could be effected on comparatively easy terms as regards cost. The whole length of the Poultry, from Old Jewry to St. Mildred's Court, is about 305 feet, including the two portions just mentioned, and of which the church occupies quite 60 feet. Deducting the 50 feet and the 60 feet, there would remain from the 305 feet only 195 feet of frontage to be set back on the north side of the street; and from that, again, some deduction would have to be made on account of two narrow courts intervening, which would lessen the amount of house property to be bought up. But it is assumed that 200 feet in round numbers of frontage remains to be dealt with; and as the houses on the western plot lately purchased, containing a frontage of 50 feet, cost 45,000*l.*, but that the surplus land remaining on their being pulled down would return 30,000*l.*, making the nett cost of setting back only 15,000*l.*, it is contended that setting back the 200 feet still remaining would not cost more than 60,000*l.*; and that the widening of the whole street would thus be completed for a merely nominal sum, which would have the effect of abolishing the daily and hourly inconvenience suffered by the thousands who now throng this thoroughfare.

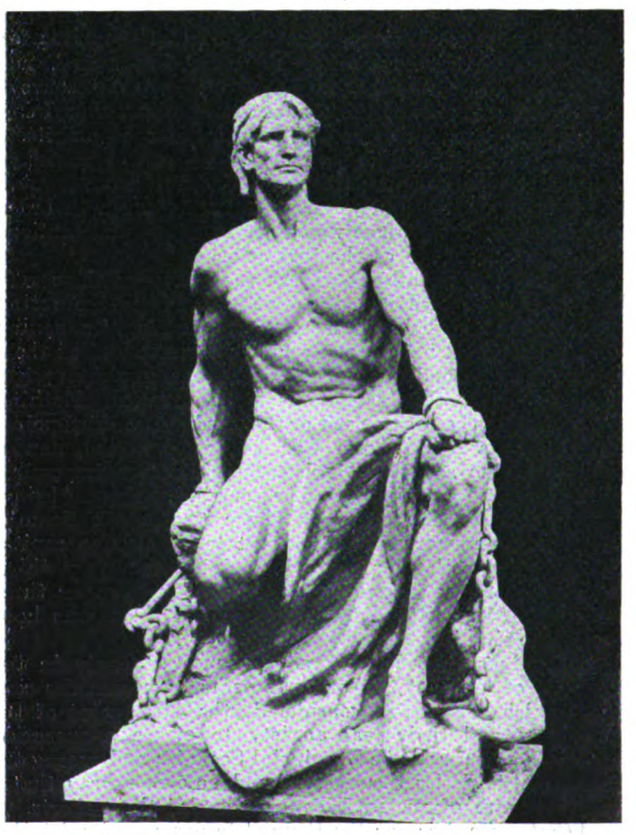
Forthcoming Events.

Friday, May 12.—Franco-British Union of Architects. Second Annual General Meeting and visit to Paris. Opening meeting at 59 Rue de Grenelle. 3 p.m. (Two days.)

Monday, May 15.—Royal Institute of British Architects. Meeting at 9 Conduit Street, W. Paper by Mr. J. Alfred Gotch, F.S.A., F.R.I.B.A., entitled "The First Half-century of the R.I.B.A. 8 p.m.

Thursday, May 18.—London Society. Visit to Cloth-workers' Hall, 41 Mincing Lane, E.C.

— Royal Institute of British Architects. Public Lecture at 9 Conduit Street, W., by Mr. Halsey Ricardo, F.R.I.B.A., entitled "The Value of Public Opinion." 5 p.m.



"PRISONER OF WAR," representing "Courage." By JOHN ANGEL, R.B.S., Sculptor. One of five figures for the Exeter War Memorial. [*Royal Academy*, 1922

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Correspondence.

To the Editor of THE ARCHITECT.

Unification and Registration Committee.

SIR,—With reference to the memorandum issued by the above Committee, I think all members of the R.I.B.A. should bear in mind the fact that there is a very large majority of men on that Committee who represent architects who do not belong to the Institute, but who naturally want to come in without passing any examination. Our Kalendar shows the Committee consists of sixty-seven members, and less than twenty of that number represent members of the Institute. Can you wonder at the result? It is no answer to say that some of the members of the Committee who represent outside architects are themselves members of the Institute; they are sent to that Committee to represent outside men, and very well they do it. But I think our own members should realise these facts and discount the value of the memorandum accordingly.—Yours, &c., SYDNEY PERKS.

Guildhall, E.C.

To the Editor OF THE ARCHITECT.

SIR,—I have received from four members of the Unification and Registration Committee a minority statement on the subject of Unification and Registration, of which I enclose a copy herewith. You will remember that at the meeting of the Unification and Registration Committee on May 1, the main body of the Committee, in issuing their own statement, undertook to receive and circulate this Minority Statement.—Yours, &c.,

9 Conduit Street, W. 1. IAN MACALISTER,
May 9, 1922. *Secretary, R.I.B.A.*

[We are obliged to hold up the enclosed report this week, as we have not the necessary space to give to it.—ED.]

Unification and Registration.

To the Editor of THE ARCHITECT.

SIR,—The members of the R.I.B.A. have received an election circular, over the names of Mr. A. W. S. Cross and others, which is directed against the Statement lately prepared by the Unification Committee. Most of it is either incorrect or misleading, or both; for it conveys the impression that the Statement contains things which are not in it and, on the other hand, that it omits important points which it does contain.

I need only say, briefly, that the original proposals for Unification have been neither abandoned, as stated, nor revised: the Statement that we have recently issued conveys the original purposes of the Committee and, as far as I can see, nothing else. As for the qualifications of architects proposed to be invited to join us, the very first proposals in the first report dealt with by the Committee are devoted to this very matter and to the steps to be taken in order to secure that those alone who possess proper qualifications shall take advantage of the invitation.

Of the four points set out as the policy of those who have issued the circular, the first relating to the voting power of the Associates is mere "vote-catching," annexing what the Council have already publicly announced as their policy. The second one suggests that the present system of admission to the Institute is to be dropped. Nothing of the kind has been suggested or intended. The third point, referring to a Registration Bill, is absurd in the mouths of people who say that Registration is either impossible or practically unattainable. The fourth, bearing on bringing the Allied Societies into closer touch with Conduit Street, is an unwarrantable attempt to get election capital from the Council, who have been doing this very thing vigorously and with conspicuous success for two or three years with very little, if any, help from those who have signed the circular.

The things that have struck me most strongly in the Councils of the past two or three years have been the care with which they have considered the standpoint of the Associates and their real anxiety to secure co-operation between London and the Provincial Societies and among the Provincial Societies themselves; and no one can say that a great measure of success has not attended their efforts.

What I want is for the Council to draw up its detailed scheme for Unification and then take a postal vote upon it from all members of the Institute.—Yours, &c.,

ARTHUR KEEN,
9 Conduit Street, W. 1. *Hon. Secretary, R.I.B.A.*
May 9, 1922.

SIR,—If Mr. Perks could get rid of the "bee in his bonnet" to the effect that the Institute Council is out to wreck the Institute by its Unification proposals, he could be a much more useful friend to the Institute than he already is. Unfortunately, the small creature appears to be constantly provoking him to all sorts of gymnastics, and now after a determined display of destructive criticism of the Institute proposals he is essaying a new trick for election purposes, and we find him in the latest manifesto, signed by himself and his troupe of trained performers, coming upon the stage with a couple of planks to assist him in the next act: the capture of the majority of the seats upon the Institute Council. It is, however, hardly playing the game to borrow the planks from the Institute. That Associates should have the same voting powers as Fellows is a point which was settled long ago by the Council, and the General Body were notified to that effect. It would, I think, tax the ingenuity of Mr. Perks and his friends "to devise a scheme to bring the Allied Societies into closer touch with Conduit Street," as the association is already so intimate and satisfactory that I do not think it could well be improved. It speak with knowledge, as I have served on the Institute Council for nearly three years as a representative of an Allied Society and during this Session have acted as Chairman of the meetings of presidents of Allied Societies held periodically at the Institute, so that I know the views of the majority of the provincial Presidents. So much for Mr. Perks's constructive proposals. I should now like to ask Mr. Perks three questions.

1. Is there any *detailed* scheme for "Unification and Registration" before the members of the Institute which defines the terms upon which architects are to be admitted to membership of the Institute in any class, other than by examination?

2. How could the Institute be wrecked by any proposals for "Unification or Registration" until a scheme has been submitted to and voted upon by the members?

3. Will Mr. Perks tell us what he is driving at?

Mr. Perks has sent out a list of nominations for the Vice-Presidency and the Council, with recommendations as to voting. Before members do so, may I venture to propose the following points for consideration:—

1. The Institute proposals with regard to "Unification and Registration" are only tentative in character, but they have been approved by the "Unification and Registration Committee" and endorsed by the Council in both cases practically unanimously. In both cases there were only two or three dissentient votes given by Mr. Perks and his followers.

2. These proposals constitute a really sound constructive policy for the future development of the Institute and the good of the profession.

3. The Institute is in a stronger position at present, and its prestige higher than ever before, because of, not in spite of, the fact that many architects have been admitted to membership without examination during the past twenty years.

If these facts are admitted, is it not then fair to assume that the present Council is worthy of support in order that it may bring to fruition the labours of the years since the war?

If so, then I should like to exhort all who hope for progress instead of stagnation to vote for the present members of the Council who are solid for a policy of Unification and Registration, and are at least entitled to ask that they be enabled to submit a detailed scheme for "Unification and Registration" to the vote of the members, upon the lines on which they have been working so long and so unanimously.

Yours, &c., HERBERT T. BUCKLAND.
Norwich Union Chambers,
Congreve Street, Birmingham.
May 10, 1922.

Associates and the Unification Scheme.

To the Editor of THE ARCHITECT.

SIR,—As frequent references are being made to the views of the Associates of the R.I.B.A. and the Committee appointed by them, we think it may be opportune to inform your readers of the present position of affairs.

On June 7, 1921, a Committee of Associates was appointed *inter alia* to ascertain the views of the Associates upon the so-called Unification scheme.

It worked hard for some months, and on January 24, 1922, a meeting of the general body of Associates was held to consider the Committee's report.

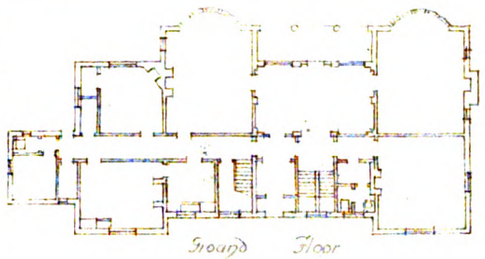
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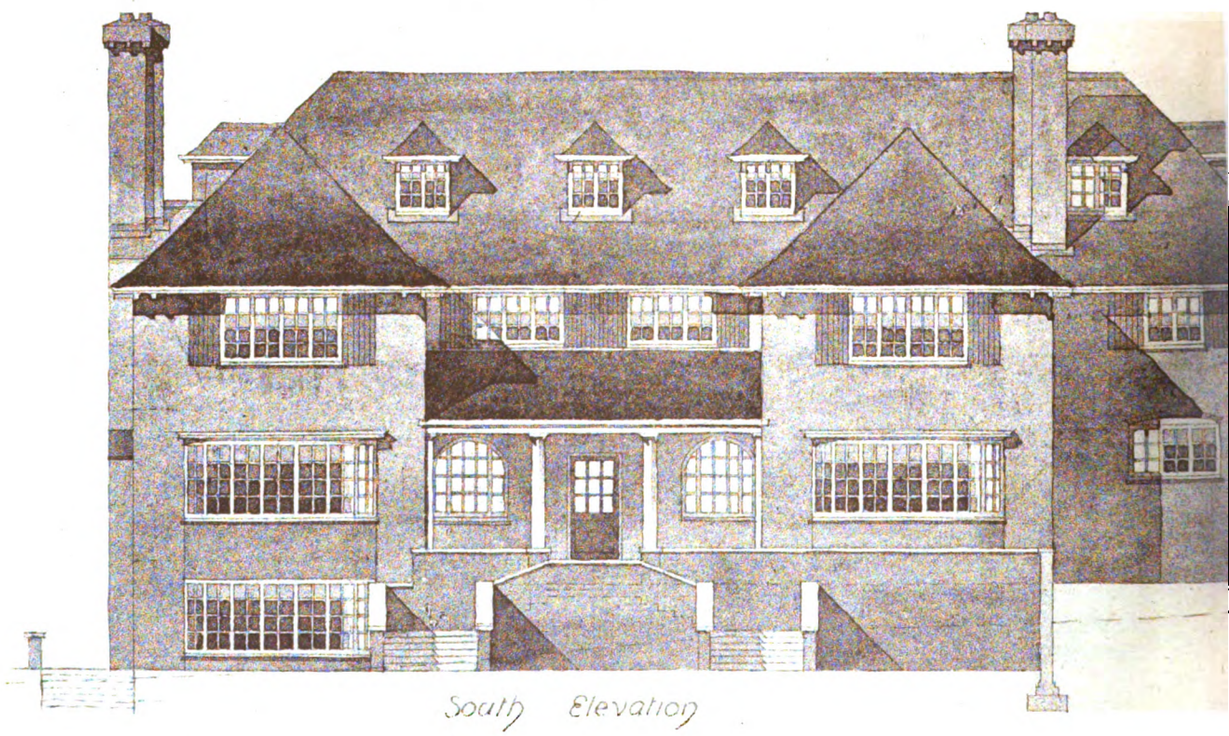
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Ground Floor



North Elevation



South Elevation

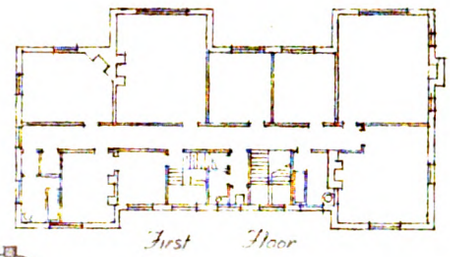
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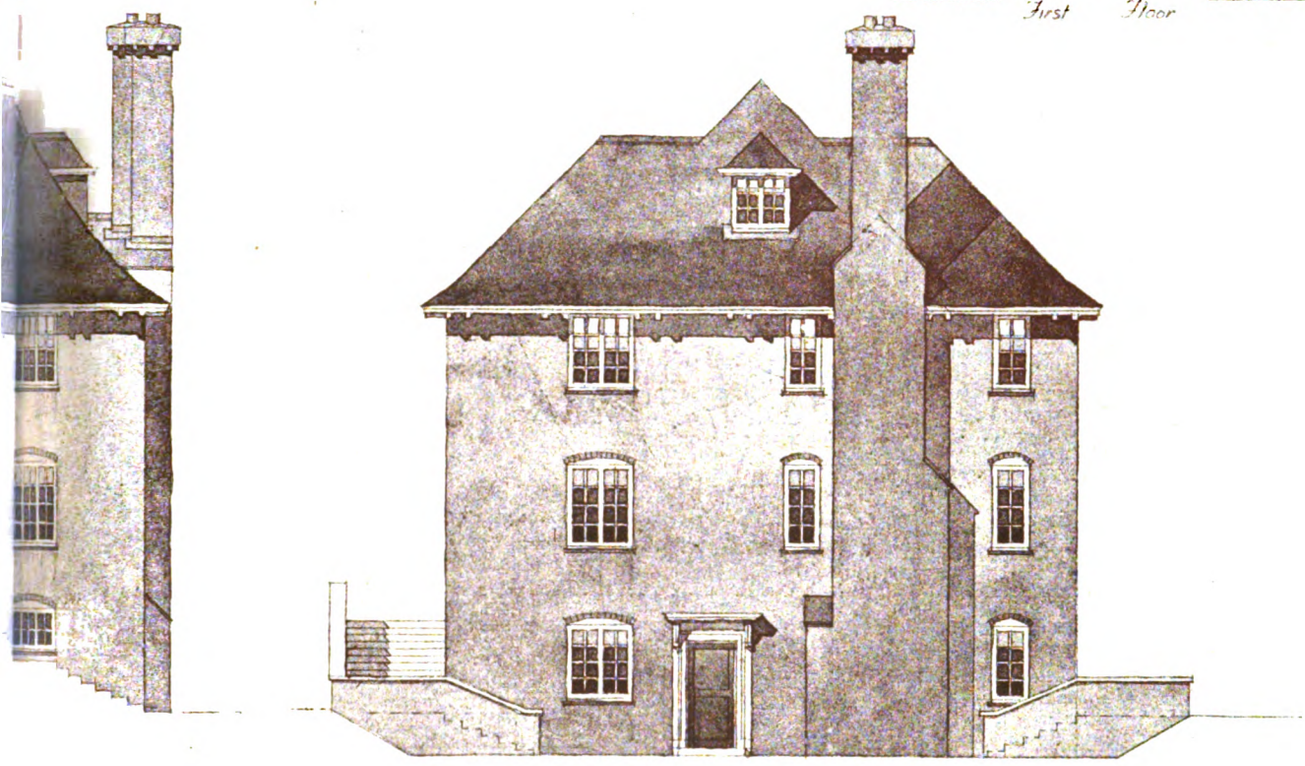
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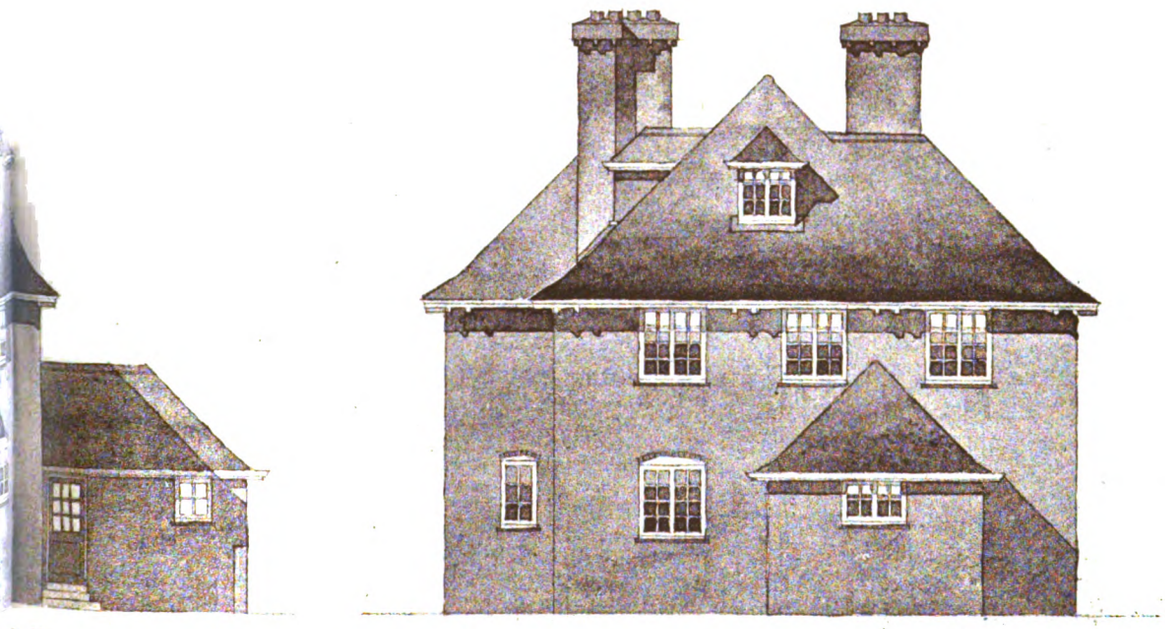
SBVRY HILL for A. G. Mardon Esq.



First Floor



West Elevation



East Elevation

Horace Field - Architect
59. Berners St. W.1.

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SBURY HILL.
ARCHITECT.

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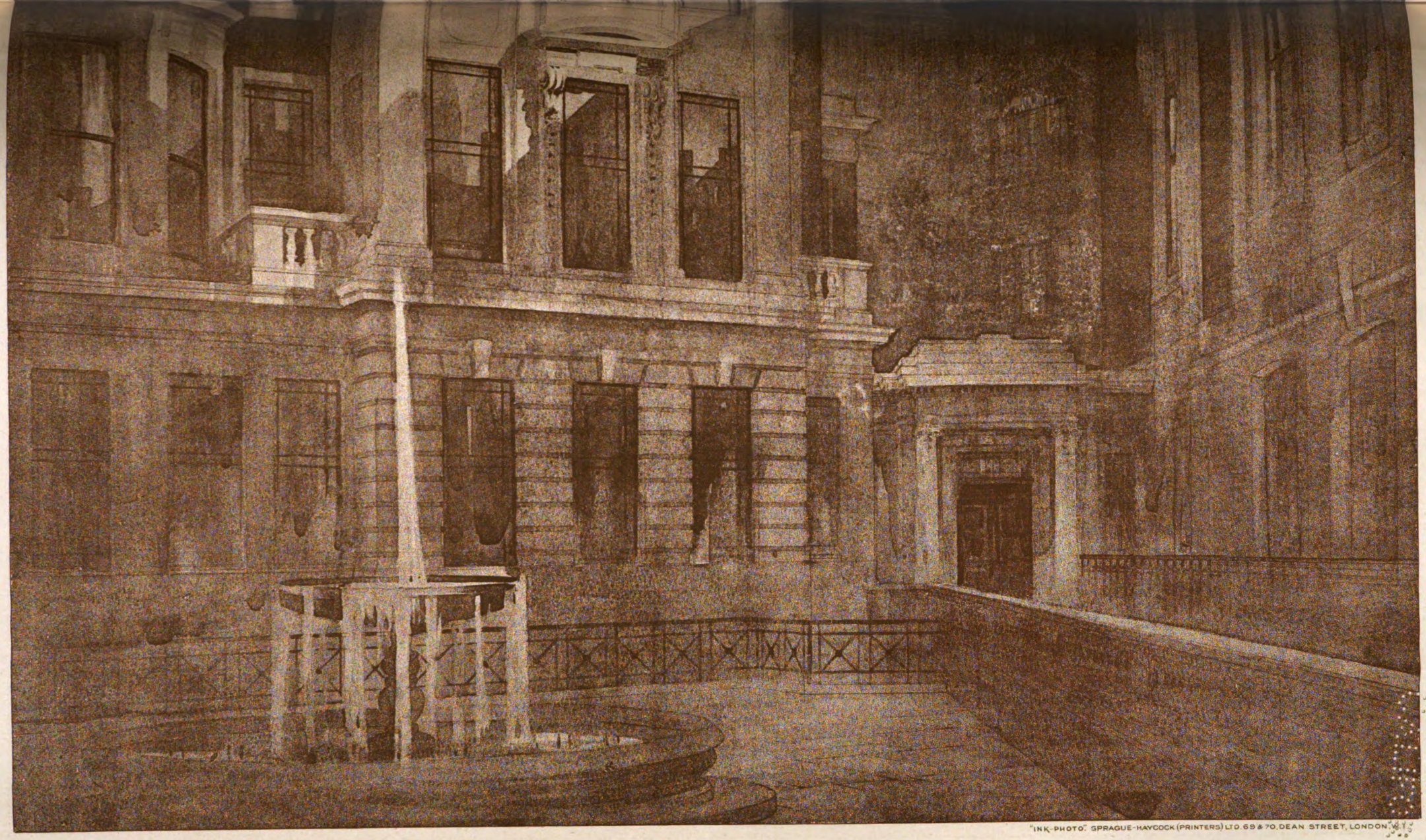
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NEW BUILDINGS IN FOUNTAIN COURT FOR THE NATIONAL PROVINCIAL & UNION BANK OF ENGLAND.

PAUL WATERHOUSE, ARCHITECT

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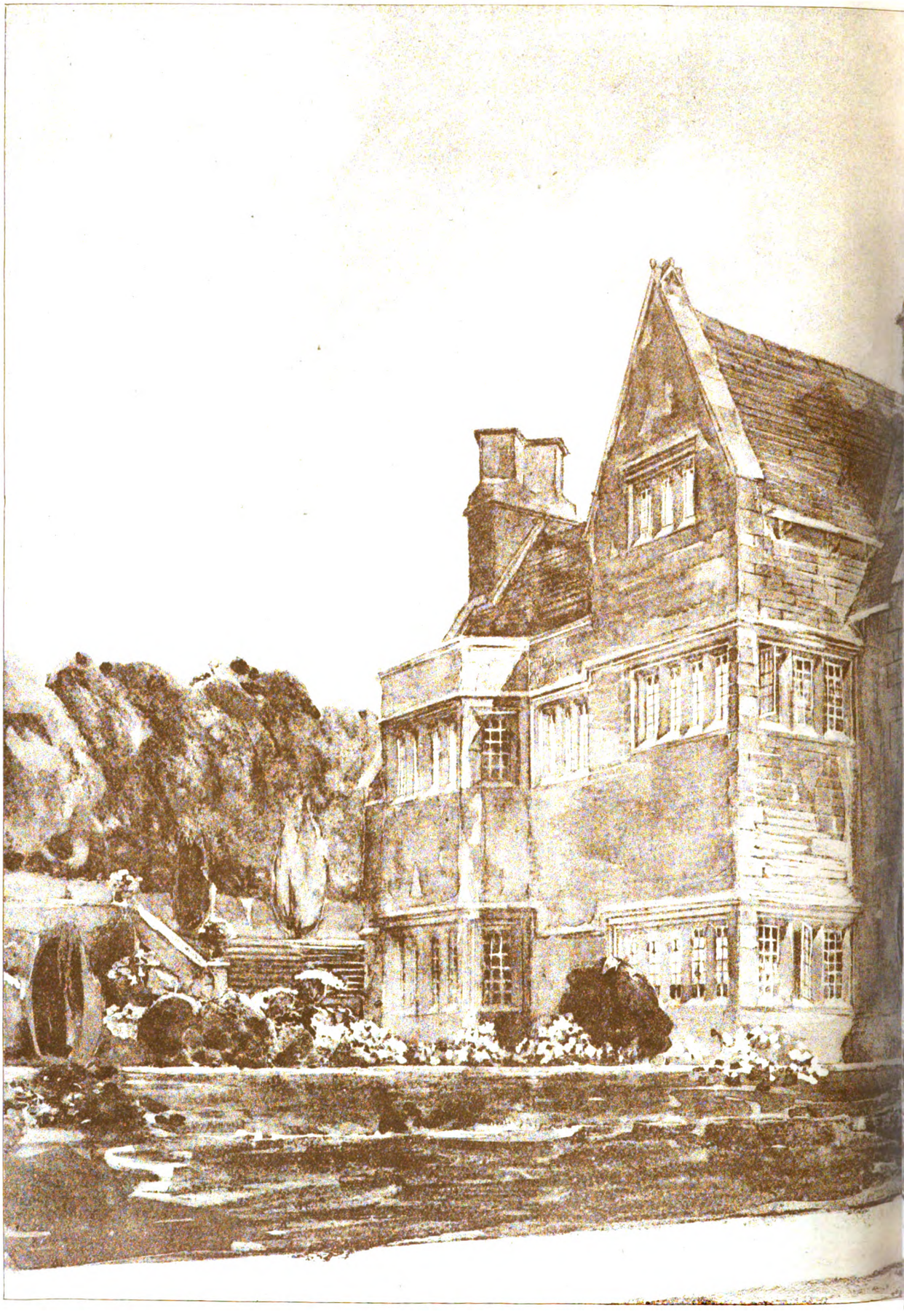
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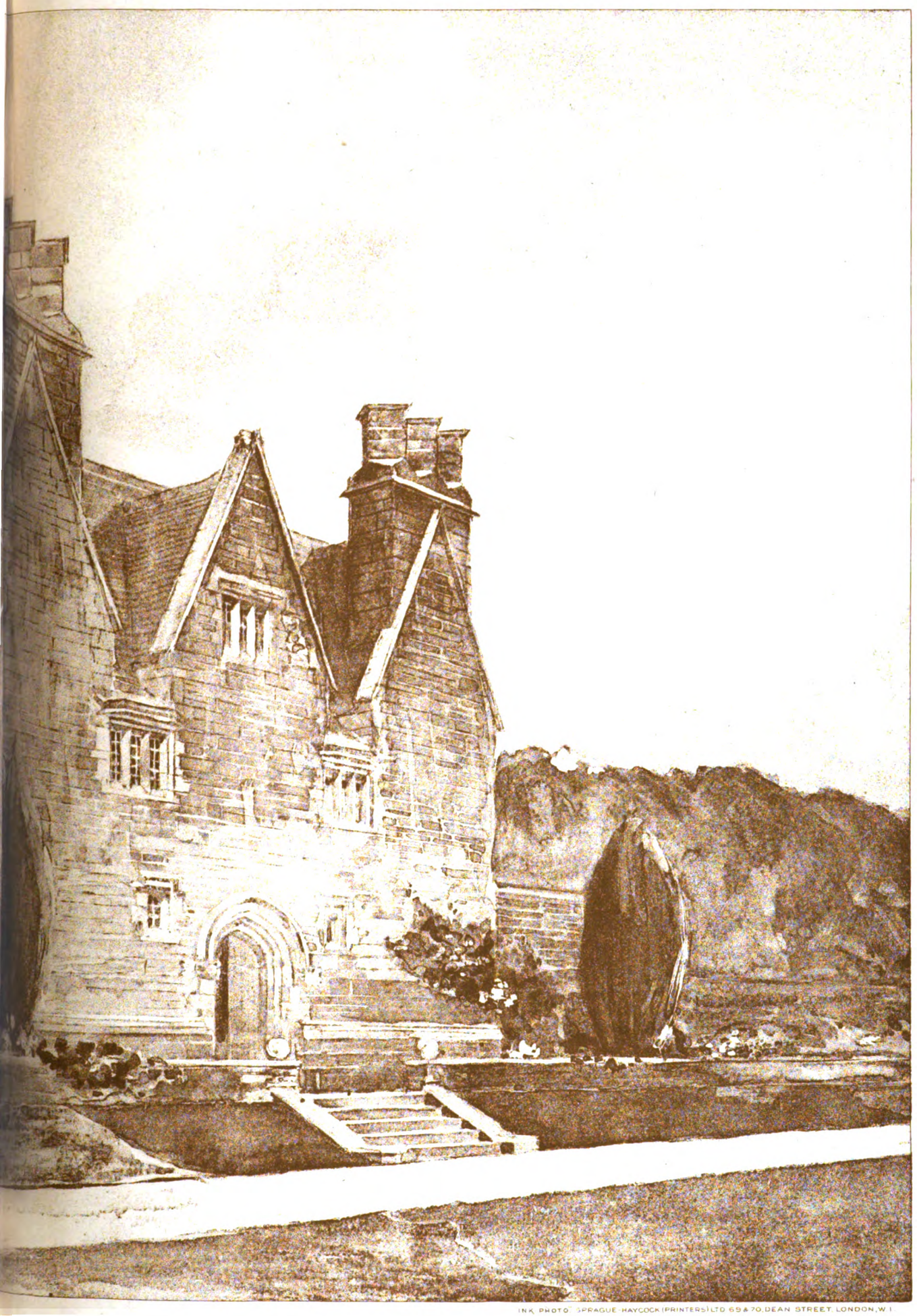
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GLOUCESTERSHIRE.

E. ARCHITECT.

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UNIV. OF
CALIFORNIA

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As this Report met with strong opposition the meeting was adjourned on the understanding that the Report would receive further consideration and would be resubmitted.

This, however, has not yet been done; so that up to the present no complete scheme or report has been approved by the general body of Associates.

It is apparent, therefore, that any rumours or statement as regards the views of Associates as a body must be entirely without authority.—Yours, &c.,

"ASSOCIATES."

To the Editor of THE ARCHITECT.

SIR,—I have to thank the Associates of the R.I.B.A. who have written to me expressing their views in connection with the report of the Associates' Committee as circulated in January last, as well as the proposals in relation to Unification.

I regret that it is impossible for me to write to each one individually; I would, however, state that I feel, in fairness to myself, I cannot do otherwise than inform my brother Associates that, as the scheme set out in the report did not represent my views, or the views of certain provincial Associates of the Committee, I resigned my position as Joint Hon. Secretary.—Yours, &c., H. G. FISHER.

27 Clanricarde Gardens, W. 2.

"Current London Prices."

To the Editor of THE ARCHITECT.

SIR,—I have read with interest the reply given by your contributor of your London Prices to the letter of Messrs. Hugh Symington & Sons, Ltd., in the issue of THE ARCHITECT for May 5, 1922.

The analysis in connection with the 5 to 1 cement concrete appears to me to be very misleading. Working on the prices given for the various materials, I fail to see how 1 yard of cement can equal 70s. 6d., when the cost of the cement is 70s. 6d. per ton. I admit that the cost based on weight is given separately at the conclusion of the reply, but even this hardly seems to meet the case. For instance, how is it proposed to deal with the sack hire? In my opinion, and still working on the figures given, a more correct method would be as follows:—

	s.	d.
5 yards ballast at 15s.	75	0
1 yard cement at 70s. 6d. per ton, plus 2s. 9d. per ton sack hire:— 27 c.f. × 90 lb., × 73s. 3d., 2,240 equals ...	79	6
	154	6
Divide by number of parts — 6	25	9
Shrinkage, compression, waste, and cement lost in voids, 33⅓ per cent.	8	7
	34	4
Labour—as detailed by your contributor	5	8
	40	0
Profit—10 per cent.	4	0
Per yard cub.	44	0

Of course, similar remarks apply to the method of arriving at the cost of the 3:2:1 cement concrete.—Yours, &c.,

FRANK BUTTERY, A.C.W.A.

May 9, 1922.

Mr. George Coppinger Ashlin, F.R.I.B.A., of Dawson Street, Dublin, and St. George's, Killiney, Co. Dublin, who died on December 10, aged eighty-four, has left personal property of the value of £9,943. The testator gives £25 to the parish priest of Ballybrack for charitable purposes.

Attention is directed to the announcement in our advertisement pages of the Society of Architects' "Victory Scholarship" of £100. This Design Competition, which was an all-round success in 1921 and promises to be even more interesting this year, is open without entrance fee to any British subject under thirty-five years of age. For the convenience of country candidates, centres are in course of formation under the auspices of the Schools of Architecture in Liverpool, Sheffield, and other districts. As the entries close on May 17, intending candidates should apply at once to the Secretary of The Society of Architects, 28 Bedford Square, W.C. 1, for an entry form and syllabus.

Royal Institute of British Architects.

The following are notes from the minutes of the Council meeting held on May 1:—

A New Housing Committee.—The Council adopted a recommendation from the Practice Standing Committee and the Town-planning and Housing Committee in favour of establishing a new Housing Committee, consisting of four members of the Practice Standing Committee, six members of the Town-planning and Housing Committee, six representatives of the Allied Societies, and additional members appointed by the Council, for the purpose of dealing with all questions affecting the subject of housing.

Building By-Laws.—It was decided to appoint a deputation from the Royal Institute to urge the Minister of Health to extend for a further period of twelve months the relaxation of Building By-laws under Section 25 of the Housing, Town-planning, &c., Act of 1919.

The Abuses of Advertisement.—It was decided to join the "Scapa" Society in supporting Lord Newton's Bill for amending the Advertisements Regulation Act of 1907.

Reform of the London Building Acts.—It was decided to form a special Committee to consider the revision and co-ordination of the London Building Acts.

Discipline.—A member was suspended for twelve months for taking part in a competition, the conditions of which were not in accordance with the R.I.B.A. Regulations.

Unification and Registration Committee.—On the nomination of the Society of Architects, Mr. A. J. Taylor, of Bath, was appointed to serve on this Committee.

Kenwood Preservation Council.—Mr. Alan E. Munby was appointed to represent the Royal Institute on the Kenwood Preservation Council.

Silicosis Amongst Stonemasons.—The Council adopted and transmitted to the Building Trades Parliament a report from the Science Standing Committee on the subject of silicosis amongst stonemasons.

The Conjoint Board of Scientific Societies.—The Council voted a contribution of £20 to the funds of the Board.

Competition News.

The promoters of the Newport War Memorial Competition having satisfactorily revised the conditions, members of the Society of Architects are at liberty to take part if they desire to do so. A similar announcement has already been published on behalf of the R.I.B.A.

Bournemouth Town Council have decided to abandon the plans prepared by the late Mr. F. W. Lacey for a pavilion on the sea-front, costing about £60,000 in 1912, which would have been proceeded with but for the outbreak of war, and adopted recommendations to offer premiums of £300, £200, and £100 for plans for a pavilion on the Belle Vue site opposite the pier entrance, at a cost of approximately £100,000.

Sir Robert Lorimer, A.R.A., R.S.A., has awarded the premiums of £250, £150, and £100 in connection with the Dundee War Memorial, as follows: 1. Thos. Braddock, 8 The Ridgway, Wimbledon, London; 2. A. S. Furner, A.R.I.B.A., 11 Beechcroft Avenue, Golders Green, London; and 3, Hicks & Charlewood, 4 Mosley Street, Newcastle-on-Tyne. One hundred and twenty-five designs were submitted. The memorial is to be erected on the Law, Dundee, for the sum of £12,500. In his remarks on his design Mr. Braddock, the winner of the first premium, says that it would be easily visible from all parts of the city, and at the same time would form an harmonious outline and be in scale with the silhouette of the hill. While the design is of a bold and massive character, interest is obtained by the change of outline from a square base to an octagonal shaft and circular crown. A brazier is placed on the summit of the tower, with a tank for oil fuel connected, and it is suggested that a flare might be burned on commemoration days.

Mr. A. Whitaker, architect and surveyor, of Sheffield, has prepared plans for cinemas to be erected at Abbeydale Walk, Sheffield, and at Goldthorpe, near Rotherham.

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Modern Methods in Building Construction.—XVI.*

By Albert Lakeman, M.S.A., M.C.I.

FOUNDATIONS ON SOFT SOILS (*cont.*)

Steel-sheet piling.—A well-known type of sheet piling is that supplied by the Side Groove Steel Piling Supply Co., Ltd., of Westminster, S.W., this consisting of bulbous-ended sections and locking bars, which give a very stiff form, and which the makers claim is economical in time and cost of driving. It is made in two standard weights known as "light" and "heavy" section, and the latter can be rolled in lengths up to 61 ft., while the light section is recommended for maximum lengths of 25 ft. to 30 ft., unless the conditions under which the piling is to be used are particularly favourable, such as soft ground or small penetration. The cross section of the light section piling is shown in fig. 85, and it will be seen that each pile advances the work 21¾ in. and the interlock is a very strong one. The heavy section is of similar shape, but contains more metal as the locking

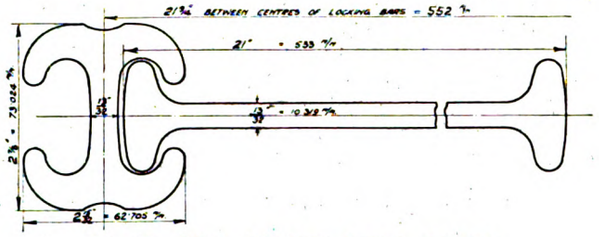


FIG. 85.—SIDE GROOVE STEEL PILING.

bars are 4⅛ in. wide on face and 4⅜ in. deep from front to back with a web thickness of ¾ in.

The makers state that the strength in tension of the heavy piling interlock is 15,000 lb. per in. of section measured along the length of the pile, and in the case of the light section the strength is 10,000 lb.

The weight of the heavy section when interlocked is 41.65 lb. per sq. ft., made up with a pile sheet having a weight of 39.1116 lb. per ft. run; and a locking bar having a weight of 36.38 lb. per ft. run, while the weight of the light section when interlocked is 25.15 lb. per sq. ft., consisting of pile sheet 33.592 lb. per ft. run and locking bar 12 lb. per ft. run. The area of piling covered equals 60 ft. super with 1.1156 ton of heavy section and 90 ft. super. with 1.0108 ton of light section.

Some of the special claims made by the makers of this type of sheet piling are: (*a*) There are less interlocks for any given length of work than in any other system of piling and infiltration is therefore less and pumping costs are lower; (*b*) no part of the sections is less than 13/32 in. in thickness, and this fact has an important bearing on the life of the piles when driven for permanent use; (*c*) the heavy section can be rolled with no part an advantage when the piling is to be used in exposed positions permanently, and only involves the extra cost due to the increase in weight of metal; and (*d*) the system is specially suited for founding coffer-dams on rock, as the locking bars have plenty of metal which can be sharpened to a chisel edge and made to penetrate a short distance beyond the bottom of the sheet piles. This system covers the Annison patents, and some special features are illustrated in fig. 86, where Nos. 1, 2, and 7 show three- and four-way junctions, Nos. 3, 4, and 5 bent-corner and angle pieces, and No. 6 a compound piling, with joist stiffening for very deep-water work.

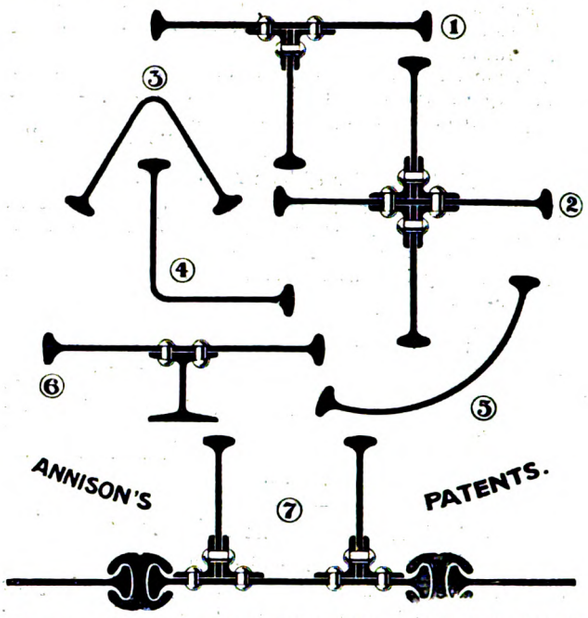


FIG. 86. SPECIAL FEATURES. SIDE GROOVE PILING.

Two applications of the method of piling are illustrated in figs. 87 and 88, the former showing the patent side-groove piling as used at the Regent's Canal, Port of London, where it was necessary to remove a landslide and put in new foundations and wall. The piling was worked to the curve of the canal and irregular line of the old foundations without bending the sheeting, and the material was used several times over without overhauling. The latter illustration shows piling which was driven to a depth of 25 ft. into the ground and tied back to anchor piles in connection with new wharf construction on the River Thames. The river bed in front of the piles was afterwards dredged to allow vessels to come alongside. This same firm also supplies pile shoes of various types to suit reinforced concrete or timber piles and the "Southgate" pile-driving apparatus and the patent "John Bull" extractor, and it is claimed that these pieces of equipment are unequalled for economy and efficiency.



FIG. 87.—PATENT SIDE GROOVE PILING AT REGENT'S CANAL.

The British Steel Piling Co., of Billiter Street, London, claim that they were the first firm to place steel sheet piling on the British market on a commercial basis, and, furthermore, that they supply more of this material than any other company in this country, and probably

* I. Introduction, Steam Shovels, Jan. 13; II. Steam Shovels (*cont.*), Trench Diggers, Jan. 20; III. Grab Buckets, Scrapers, Jan. 27; IV. Drag-line Excavators, Feb. 3; V. Derricks and Cranes, Radial Loaders, Feb. 17; VI., Surplus Soil Transport, Feb. 24; VII. Surplus Soil Transport (*cont.*), Mar. 3; VIII. Surplus Soil Transport (*cont.*), Mar. 10; IX. Surplus Soil Transport (*cont.*), Mar. 17; X. Surplus Soil Transport (*cont.*), Mar. 24; XI. Foundation Work, April 7; XII. Foundation Works (*cont.*), April 14; XIII. Foundation Work (*cont.*), April 21; XIV. Foundation Work (*cont.*), April 28; XV. Foundation Work (*cont.*), May 5.

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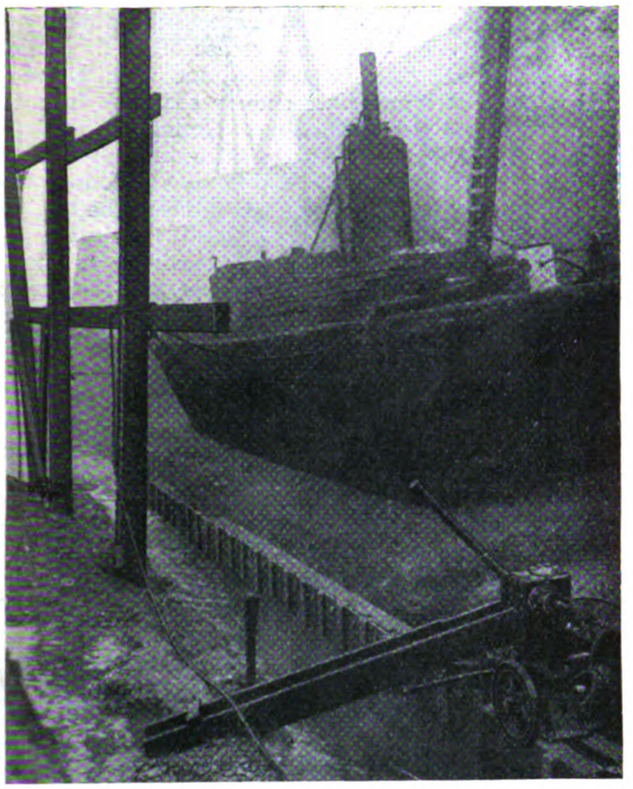


FIG. 88.—WHARF CONSTRUCTION, RIVER THAMES.

more than any other firm in the world. If these claims can be substantiated, it is a strong argument in favour of the plain-web type as against the arched or corrugated section, because the test of any material will lie in the practical application of same to works of importance, and satisfaction will be followed by adoption for other schemes. The days have now passed when the respective merits of steel-sheet or timber piling are discussed, and the question of importance to the engineer or contractor now is which section of steel-sheet piling is most suitable for his work?

Two types are made by the British Steel Piling Co., known as "Universal Joist" and "Simplex" steel-sheet piling, the former being designed for heavy work and the latter for much lighter work.

The "Universal Joist" type is illustrated in fig. 89, and it will be seen that it consists of standard-section rolled-steel joists connected by special clutch piles, the joists in all cases having flanges 5 in. wide, thus allowing a range of sizes from 15 in. by 5 in. to 5 in. by 5 in., with the same interlocking member. Numerous advantages are claimed by the makers, and some of these can be given as they cover the features that will interest anyone making a selection of type. These claims are as follows:—

1. It has a greater lateral strength per lineal foot as a whole than any other steel piling, the joist and clutch being, of course, considered together.
2. It is a symmetrical plain-rolled section.
3. The centre line of the piling when assembled is also coincident with the centre of gravity of each member.
4. It drives freely at about one-fourth the cost of driving timber.
5. It pulls freely at a low cost; the pull being exerted directly along the neutral axis of each piece.
6. It is watertight, owing to the four points of contact in the clutch.
7. It will withstand great pressure, the piles lending each other support.
8. Less bracing is required than with any other kind of steel piling, owing to the interlocking and strength of the piles when assembled.
9. No shoes to fix or cutting required, the piles being delivered on the job ready for work.
10. These piles can be used a large number of times and then have a high salvage value when finished with as piling, 30 to 60 per cent. of the original cost being obtained for the joists.
11. Perfect alignment.
12. Easily adapted for corners, curves, circular work, &c.
13. When used for circular work, practically no bracing is required.
14. Standard joists that can be obtained at a few hours' notice from stock.
15. Has a high radius of gyration. This is an important consideration, for no matter how strong a pile may be proved to be when driven, if it buckles during

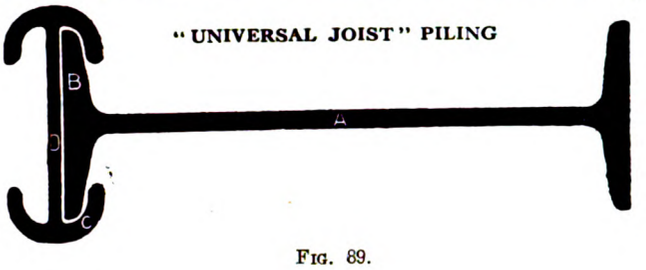


FIG. 89.

driving the piling is useless. With regard to the use of the piling a large number of times, it is stated that in some instances it has been used sixteen times and after overhauling has again been put into service.

The use of different size joists with the same interlocking member is often a distinct advantage, as a space may be filled up when closing a coffer-dam without the use of special piles, and a variation of strength in the same stretch of piling can be made to suit an increased length or harder strata by using, say, 10-in. by 5-in. joists in lieu of 15-in. by 5-in., this bringing the clutches nearer together and giving greater lateral strength. The weight of the piling when interlocked varies from 43 lb. per square foot in the case of 15-in. by 5 in. joists to 88.18 lb. with 5-in. by 5-in. joists. The weight of the clutch in all cases is 15.5 lb. per ft. run, and the length advanced in the work by one pile and clutch, which are driven as one unit, will equal the length of the joist selected plus $\frac{3}{8}$ in.

A modified form of the "Universal" joist piling known as "Universal Compound" piling is also manufactured for use in special cases or where it is desired to avoid as much bracing as possible. With this type one row of walings and braces along the top is sufficient to carry a large head of water, and there is, therefore, a saving in timber and less obstruction to any work that has to be executed close to the piling, but the initial cost of the steel piling is greater than the ordinary "Universal" type as more metal is used by the introduction of the stiffening joists. The method of placing these joists is shown in fig. 90, which is a sectional plan of the "Universal Compound" type.

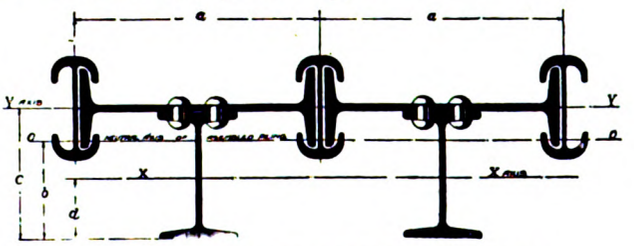


FIG. 90.—UNIVERSAL COMPOUND PILING.

The "Simplex" steel sheet piling, which is also manufactured by the British Steel Piling Co., is a much lighter type than the "Universal," and is intended for schemes where the use of the heavier type would not be justified. The section of the "Simplex" type is illustrated in fig. 91, and it will be seen that it consists of only one member, which is reversed alternately to provide the necessary interlocking. It is made in two sizes, viz., 8 inches wide and 12 inches wide, with weights

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"SIMPLEX" STEEL SHEET PILING.

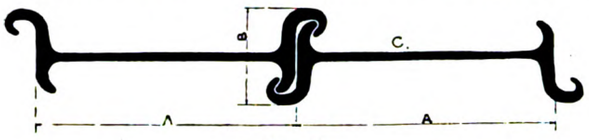


FIG. 91.

of 22 lb. and 26.5 lb. per super foot respectively. Under ordinary conditions the 8-inch piling is suitable for driving lengths up to 25 feet or 30 feet, and the 12 inch sections up to 30 feet or 40 feet. It is considered that these two sections will meet all the requirements for the lighter classes of work when it would not be economical to use the "Universal" type. One ton of the 8-inch section will cover over 100 feet super when assembled, and it should therefore prove a cheap method for lining trenches and light classes of work.

Some of the junctions, corners and branches adopted with the "Universal" type of piling are illustrated in fig. 92, and it will be seen that there is no difficulty in obtaining almost any required shape in the line of the coffer-dam.

When driving the "Universal" piling a commencement is always made with a plain joist which must be carefully plumbed in all directions. When this is driven a clutch and joist are driven together under the hammer as one unit, and care must be taken always to drive the clutch over the flange of the last joist driven. By driving the joist first and driving the clutch over this, the clutch does not get filled with soil, and thus any strain consequent on this is avoided. In closing the coffer-dam the last pile will have two clutches to join up with—the first and last joist driven, and these must be placed and driven down together. It is a good practice to set up the last few piles at the same time and gradually carry them down together by driving every alternate pile a few feet and then coming back and driving down those which are standing up above the lower piles. In cases where the piles have to be driven to a great depth, say 90 feet or 100 feet, it is always advisable to set them all up in the first instance and carry them down alternately or in sections, about 5 feet at a time, so as to keep the toes of

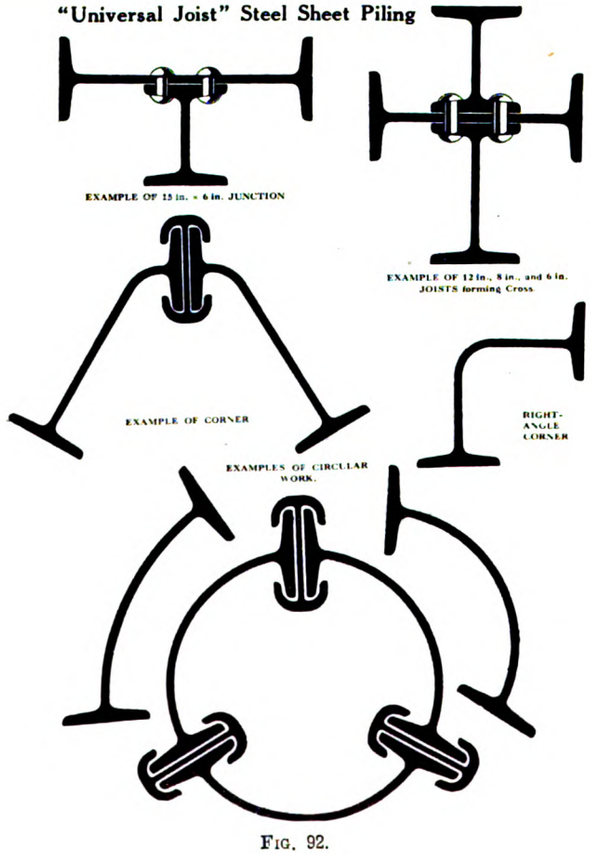


FIG. 92.

the piles together and prevent deflection, and many engineers prefer to have the work executed in this manner even when the depth does not exceed 30 feet. In circular work this method is essential, and it will be readily understood that it ensures a definite shape to the coffer-dam and obviates any difficulty in closing the line which is met with when the piles are set up and driven individually, as the least deflection from the course when driving will mean an awkward task to insert the last unit.

The British Steel Piling Co. also supply complete equipments for driving and withdrawing all types of piling, and they strongly recommend the McKiernan-Terry double-acting automatic steam- or air-hammer for general work in connection with driving steel sheet piling, although no hard-and-fast rule can be laid down. They do not advocate the use of a drop-hammer if it can be avoided, as it damages the heads and is altogether too harsh. Owing to their extensive experience in steel piling many of their comments are worthy of notice, and some of these may be mentioned.

The most difficult soils for steel piles to penetrate are ballast or gravel, and care must be taken that only a short blow is given, and thus the pile is allowed to work its way through, as although a long drop will make the



FIG. 93.—FOUNDATION WORK AT THE BRENTFORD GAS COMPANY'S WORKS—"SIMPLEX" PILING.

pile travel faster it may get damaged at the toe and cause trouble in drawing. Sand and clay are the easiest soils for steel piling. A water jet is rarely necessary with running sand, but if used it, of course, accelerates the driving. Short lengths can often be blown into sand with a water jet, with the hammer just resting on the top of the pile, and in some cases even the weight of the hammer is not required. Owing to the small displacement of soil caused by the steel pile all compact soils can be penetrated to depths where it would be impossible to drive timber or concrete piles. Before the piles are set up the interlocks should be well covered with wagon grease, as this prevents a rust joint forming, and makes driving and withdrawing easier. Where a water jet is used for driving, the outfit consists of double-acting pump, flexible tube, steel tube, and nozzle, and the tube with the jet is carried down the side of the pile to the toe, and water is pumped down same at a high pressure. The effect of this is to disturb the soil, and the progress of the pile is accelerated. The operation of driving the piles is generally carried out in one of two ways: either a pile-driving frame is provided, the pile being kept in position by the guides on the base of the McKiernan Terry hammer (or driving cap, as the case may be), the leaders of which assist in guiding and laterally supporting the pile and ensuring straight driving; or the pile is placed in position between walings above ground, or in

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water by means of a crane. In each case the driving should be done by means of a steam- or air-hammer, either working on the face of the leaders of a driving frame or suspended from a crane. It is stated that it is almost always desirable to use a pile-driving frame for steel sheet piles of whatever make, no matter what sort of hammer is used, owing to the command the operator has over the driving operations by such method.

Several examples could be given of the use of the "Universal" and "Simplex" types, but one of each should suffice to indicate the practical application to work in this country.

The most notable example of the use of the "Universal" type is that provided by the Port of Richborough, which was one of the notable engineering achievements of the Great War. Commenced in April 1916, the total area of the site was 2,200 acres, and this was generally low-lying marshy ground, through which the River Stour flows into Pegwell Bay. The wharf necessitated the diversion of the river through a new channel, and some idea of the magnitude of the undertaking will be realised from the fact that the railway system comprised about sixty miles of permanent way, and provided standing room for over 3,000 wagons, the average number handled daily being 1,470; while the locomotive mileage within the area of the works approximated to 2,800 per day.



FIG. 94.—FOUNDATION WORK AT THE BRENTFORD GAS COMPANY'S WORKS—"SIMPLEX PILING."

The train ferry service commenced running in February 1918, and up to the Armistice had made 250 outward trips, carrying 185,000 tons deadweight. "Universal Joist" piling was used on practically the whole of the scheme, and was driven by pile-driving plants supplied by the British Steel Piling Co. That part of the works designated the new wharf was formed by driving a line of piling over 2,000 feet in extent, and consisting of piles over 35 feet long, across a loop in the river to within about 4 feet from ground-level. A concrete wall was built 30 feet back to act as an anchorage, and the ground in front of the piling was then excavated for some distance down, and the walings and 2½-diameter tee rods placed in position and secured to the anchorage wall. A concrete coping was placed on the heads of the piling, and the intervening ground in front of the wharf wall was then taken out by means of a dredger to the required width and to a depth of 24 feet. The whole wharf was completed in about four months.

An example of the use of "Simplex" piling in foundation work at the Brentford Gas Co.'s works is shown in figs. 93 and 94. Fig. 93 affords a good illustration of the regularity of the driving, and fig. 94 shows the inside of the dam during excavation, when it will be noticed that the piling is watertight and a clear working space is provided.

(To be continued.)

General.

The Edinburgh Exhibition Association have been granted warrant to erect an exhibition hall at Annandale Street.

The centres for the R.I.B.A. Intermediate Examination, which will be held from June 9 to June 15, will be London and Birmingham.

Paddington Borough Council have under consideration a proposal to erect a new town hall and municipal buildings at an estimated cost of £100,000.

The Abingdon branch of the Berkshire Archæological Society propose to excavate for the foundations of the ancient abbey at Abingdon. At present only the old gateway, infirmary, and the Prior's lodging are above ground.

Mr. R. E. Stradling, M.Sc., A.M.I.C.E., of Birmingham, has been appointed head of the Civil Engineering Department at the Bradford Technical College, at a commencing inclusive salary of £650 per annum.

The Cardiff Electricity Committee recommend the acceptance of a tender of £3,421 from Messrs. Booth & Sons, Bolton, for the erection of bunkers and a boiler-house roof at Roath Power Station.

The Lincoln City Council have decided to consult Sir Reginald Blomfield, R.A., as to a site and building suitable for housing the Usher bequest of art treasures. A proposal to purchase for the purpose a building known as Hatfield House was defeated.

Mr. Arthur Hewitt, architect, Llandudno, is preparing plans for an opera house and winter gardens, with ball-room, which it is proposed to erect at Colwyn Bay. The scheme is being promoted by the manager of the Colwyn Bay Pier Pavilion, which was recently destroyed by fire.

The Wakefield City Council are about to apply to the Ministry of Health for sanction to raise by loan £88,000 for the remodelling of the Calder Vale Sewage Works. The West Riding Rivers Board for some time past have been dissatisfied with the effluent discharged into the river, and to meet the wishes of the Board remodelling and extension of the works on the aeration principle is to be carried out.

The Royal Academy of Arts will shortly proceed to elect one Turner Annuitant. Applicants for the Turner annuity, which is of the value of £50, must be artists of repute in need of aid through unavoidable failure of professional employment or other causes. Forms of application can be obtained by letter addressed to the Secretary, Royal Academy of Arts, Piccadilly, London, W. 1. They must be filled in and returned on or before Saturday, May 20.

The Artists General Benevolent Institution and the Artists' Orphan Fund held their annual dinner on the 3rd inst., the Duke of Connaught in the chair. Mr. Guy Dawber, the hon. treasurer, announced a collection by the stewards amounting to a total of £3,388. The amount paid out in 1921 for the relief of necessitous artists or their dependents was the largest total yet reached—£9,000. Mr. Dawber announced the purchase of a house with a long lease to accommodate twelve beneficiaries of the fund, and made known the decision to earmark a legacy from the late Marcus Stone for the upkeep of the institution.

Trade Notes.

Sir William Arrol & Co. are now engaged in the construction of warehouses and adjacent roadways for the Port of London Authority at King George V. Dock, and the reinforcement used on these extensive works is the Walker-Weston Double-Layer type. The road areas aggregate to upwards of 10,000 sq. yds.

An interesting Anglo-French business development has just been arranged by Sir George Hayter Chubb, Bt., acting as chairman of Chubb & Son's Lock and Safe Co., Ltd. Owing to the increasing demand on the Continent for their patent locks and safes, Messrs. Chubb have formed a subsidiary company called Chubb-France, with its headquarters in Paris; and they are entering into an agreement with Messrs. Bauche & Triaud, the well-known French safemakers, to build for them safes and bankers' security work, for which they receive orders in specified European countries. Messrs. Bauche's works at Rheims were utterly destroyed by the Germans in 1915, but new works on a much larger scale, and equipped with modern up-to-date electrical machinery, have just been completed. All the directors of Chubb & Son's Company, including Sir George Chubb's sons and nephews, together with Sir George Truscott, Sir Henry Holloway, and Mr. Harold Morrish, will be in Paris next week, and on the 23rd inst. a dinner will be given at the Hotel Meurice to celebrate the establishment of the new French company. The following day the directors proceed to Rheims to inspect the new Bauche works at Bazancourt.

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VOL. CVII.—2787. THE ARCHITECT MAY 19, 1922

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The R.I.B.A. Elections.

It is difficult for those who share our views on the subject of Registration to suggest how and in what manner the members of the Institute can best promote the welfare of the profession. All must be conscious of the strong desire felt by what is probably a clear majority of architects for attempting to secure statutory registration, while comparatively few seem convinced that it is most unlikely to be achieved through any action which may be taken, and still fewer are convinced—as we are—that even if it can be brought about it would do architects little tangible good.

We look upon the policy of the Institute, as represented by the present and preceding Councils, as being governed by the desire to do what the bulk of its members desire, rather than as representing the convictions of the clearest thinkers of the profession, who, we believe, think that Registration is impracticable—another instance of the weakness of representative government,—for those entrusted with powers feel themselves conscientiously compelled to act as delegates in forwarding measures in which they may have little faith. As to the means, we are sure that there is no escape from the obvious fact that Registration, if it is to be, can only be obtained by the advocacy of a body which represents a clear majority of practising architects. We are thus on the horns of a dilemma, for if architects were polled to-morrow a large majority would undoubtedly support Registration, and a Council which was anti-Registrationist would not secure election at the hands of the members of the R.I.B.A. And the minority of us who do not believe in Registration may have an even stronger objection to what we can see logically are the best possible means by which it can be brought about.

We confess to being in this position, and for those who agree with us the only reasonable policy is to vote for those we think the best candidates on their merits as men, irrespective of the fact that they may be supporters of measures we dislike.

Again, while we do not feel enthusiasm for the large measures to bring about the "unification of the profession," we have always been of opinion that the fusion of the Society of Architects with the Institute is very desirable in the interests of architects. Here, again, different factors have to be reconciled, for the price of such a fusion must be the undertaking by the Institute to promote a scheme of Registration to which the Society is pledged, so here again the skeins of policy are tangled. In effect the position is this : a majority of architects would undoubtedly support the election of a Council pledged to promote a measure of Registration, while we believe if this has to be done some such course as that taken by the present and last year's Councils may be deemed to be reasonable preliminaries. Assuming we are correct in this there seems to be little reason in opposing the policy of the present Council, while we may have more or less good reason for preferring A as a member to B or C on their individual merits.

Democracy everywhere counts heads, believing in the settlement of intricate questions in accordance with the wishes of the majority, a great proportion of whom are not competent by temperament and knowledge to weigh facts and come to sound conclusions. Its only reasonable defence is the more or less justified suspicion that the actions of an aristocracy or autocracy are dictated by the personal interests of those composing it. This applies not only to national but to professional politics, for numbers do not and cannot connote wisdom or understanding. For example, the Institute might well be one quarter of its present size and yet possess more influence than it does, and have a greater power for impressing the public and forwarding the interests of architects as a whole. This would be the result if it was generally known : that the membership of the Institute involves very high qualifications, which were a guarantee of outstanding ability and competency. But in the practical politics of to-day such a body would be weakened by the suspicion that its members desired to forward not the interests of architects but their own personal ambitions; and the measures it took in the interests of architects would be held as being suspect for that reason. In the end we are driven back to the conclusion that the greatest good that can be done, and the greatest advances that can be made, must always be due to the energy and ability of individuals, who because they are more clear-sighted and possess greater ability than their fellows acquire more influence for good. All great advances in knowledge, science, and art are due to the exceptional ability and energy of the individual, and not to an advance in the intelligence of the community to which he belongs.

"Team spirit" and "unity of command" were expressions much used after the war as applicable to civilian efforts, but in the first place military results were the outcome of the autocratic power of leaders and material resources, together with physical courage and physical power and patriotism of the forces employed, none of which are quite analagous to the more complex conditions of our daily lives; and all must admit that the factor of individualism so strongly expressed in civilian life is practically submerged in a state of warfare. The dominating factor in the architect's case is his ability, energy, and power of impressing those for whom he works, with his fitness to serve their purposes, and no regulation or organisation of the profession as a whole can make or mar the personal issues on which a man's success depends.

The more we realise this, and the less we depend on the extraneous and problematical help of professional organisation, the greater is likely to be our personal success. And the sum of such personal success multiplied by our numbers will be the real element on which our greater success with the public depends.

We cannot make a very strong case for Registration, because it is impossible to show that the health and security of the public depend on the

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employment of architects in matters of building, we are not even able to prove, except in individual cases, that better financial results accrue from their doing so. And if we by great sacrifices are able to restrict the title "architect" to those who have gone through some defined course of training, or obtained certain diplomas, or belong to a certain body or bodies, we have increased, and not lessened, the inducement to other men not so qualified to obtain work by describing themselves as building specialists, whose fees are lower than those of architects, and whose ability to be of use is not less. And we should attain our end by a further dilution and lowering of our standards, so that in the end we believe we should lose and not gain.

It is the confidence of the public in our power to make ourselves of use to them which we most require, and this, it seems to us, is what the actions of architects as individuals, rather than the collective action of our societies, can best attain. The future will show whether we are right, but in the meantime we would urge members of the Institute to vote for those they consider the best men, irrespective of their political views.

Illustrations.

YORK ROOM, FRASCATI RESTAURANT, LONDON. STANLEY HAMP (COLLCUTT AND HAMP), Architect.

KENNET ORLEY, WOOLHAMPTON, BERKS. MERVYN MACARTNEY, Architect.

SWEDISH CHAMBER OF COMMERCE FOR THE UNITED KINGDOM, 14 TRINITY SQUARE, LONDON, E.C. NIVEN AND WIGGLESWORTH, Architects.

Notes and Comments.

Mr. Aldridge and Rent Restriction.

Mr. Aldridge has been writing on the subject of the Rent Restriction Act, which he hopes will be extended for a further term. We hope that he is not a Socialist, but it is difficult to account in any other way for his wish to retain the Act. If houses are wanted, as he says, surely it is an advantage if their owners find them a profitable property. If they do they will build others, and in so doing they will automatically help to bring about a natural reduction of rents. But there are many avenues in which a man may make profits without any restriction, and if he finds these profits are limited in the case of building by restrictive laws, he will choose some other investment. We quite admit that some of those now paying rents which are artificially low because of the Rent Restriction Act would have reason to regret its repeal, but, after all, if the greatest good of the greatest number is really what we are trying to obtain, it is better to have rents raised, coupled with more building activity, than rents kept down and little or no building. That is the real alternative, for it is clear that the State is not able to provide what is wanted.

A Russian Concession.

Colonel Frederick Cripps, Lord Parmoor's son, has obtained a concession from the Soviet Government for rebuilding Moscow. The work will cost many million pounds and about 2½ millions will be spent on rebuilding houses during the first year. Free leases for eighteen years will be given for buildings requiring small repairs, thirty-six-year leases for others, and fifty-year leases in the case of houses requiring complete rebuilding. It is said that Germany endeavoured to obtain this concession but failed, but succeeded in obtaining large concessions in Southern Russia. All this is clear proof that faith is not dead in the modern world, for we should have thought that financiers would have been wise in waiting till the present *régime* has been replaced by a Government on whose promises reliance can be placed. As things stand, it might be well to let this tempting opportunity of making money go by; for, if the Soviet Government lasts, no one can tell when they will find it convenient to repudiate any grant they have made, and we do not suppose that this or any other country would contemplate the possibility of using force in aid of any of their subjects who had ventured their money in any scheme in the interior of Russia. And some day or other the owners of the property which the Soviet proposes to grant or lease may come to their own again, which would produce a complicated position.

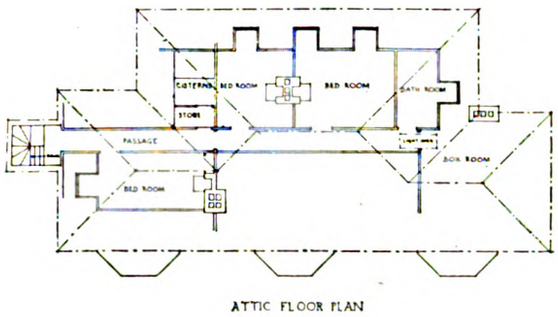
Housing in Paris.

The housing problem is said to be acute in Paris, where 16,000 people are registered municipally as being in want of houses, and many more need them though they have not made their wants known in official quarters. A Franco-American Society is to build flats on an American model, having central heating and other conveniences, but only the rich can afford to live in them. The promoters are offering the flats, which are not yet commenced, for sale, and are obtaining half their money now, the balance being spread over a period of thirty years. These flats are to be ready for occupation next year. The laws restricting rents are evaded by calling old and dilapidated houses hotels, which puts them outside the regulations, while it is possible to base the charge for furnished apartments on an entirely arbitrary valuation of the furniture, and the legal rents asked in many cases are coupled with premiums demanded by concierges and agents. Altogether it does not appear that the French capital can be an easy place to find accommodation in just at present, and it may be that those who live in London have cause for congratulation.

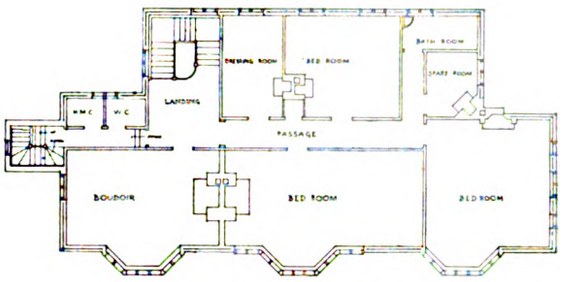
Unification and Registration.

The Minority Report, though carefully and well expressed, does not convince us, as we are inclined to think the course proposed by the Council of the R.I.B.A. is more likely to achieve the desired result—in this case, to give the best chance for obtaining sanction to a measure of registration. But as we neither believe registration to be desirable, or think that it would benefit architects, we have every right to express our objection to the proposals made to lead up to it. We look on registration as both unnecessary and undesirable, and on unification on the broad basis proposed as very objectionable, and possibly mischievous to the status of the Institute and the profession as a whole. It may result in the formation of a large trade union, but it will not be one powerful enough to impose its will on the public, and so will fail in its effect. Nor can it be said that it will increase the status of the Institute, but it will rather, on the other hand, lower it at any rate as far as the present generation of architects is concerned. It is true that the R.I.B.A. might need larger and finer premises, but even that seems a secondary question compared with the quality and standing of the men who are admitted to its membership.

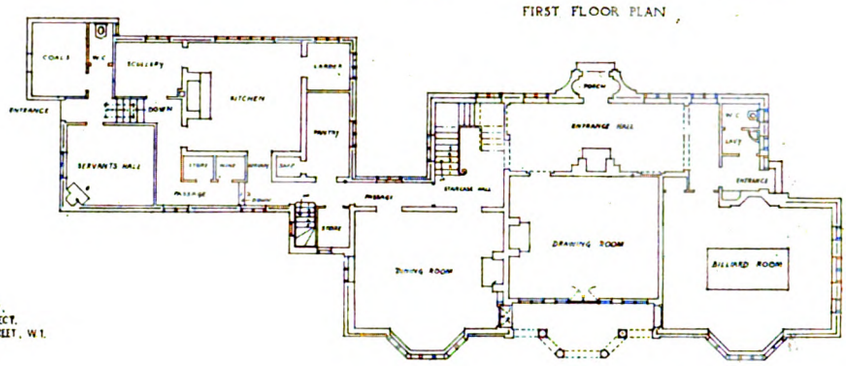
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ATTIC FLOOR PLAN



FIRST FLOOR PLAN



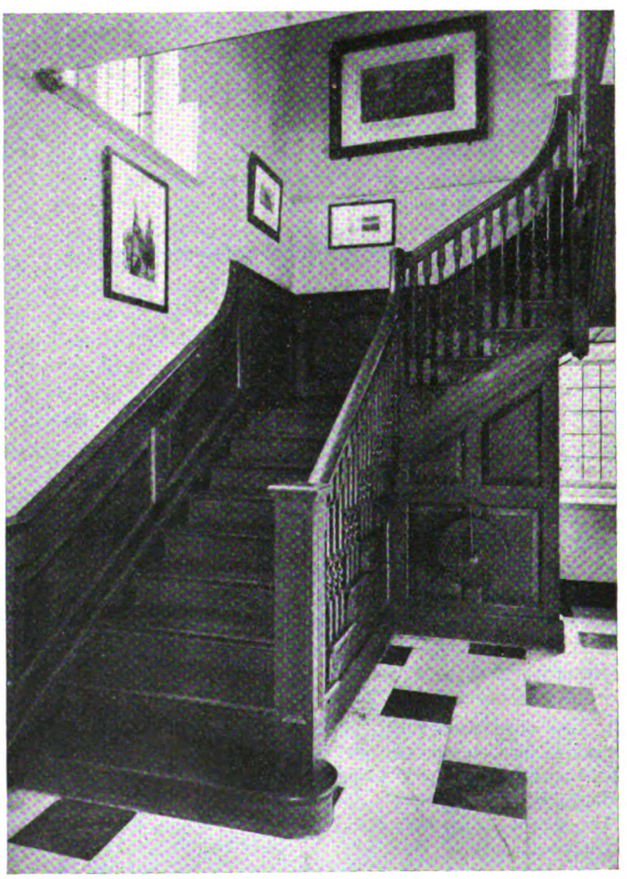
GROUND FLOOR PLAN

Kennet Orley, Woolhampton.

(*See Inset Illustrations.*)

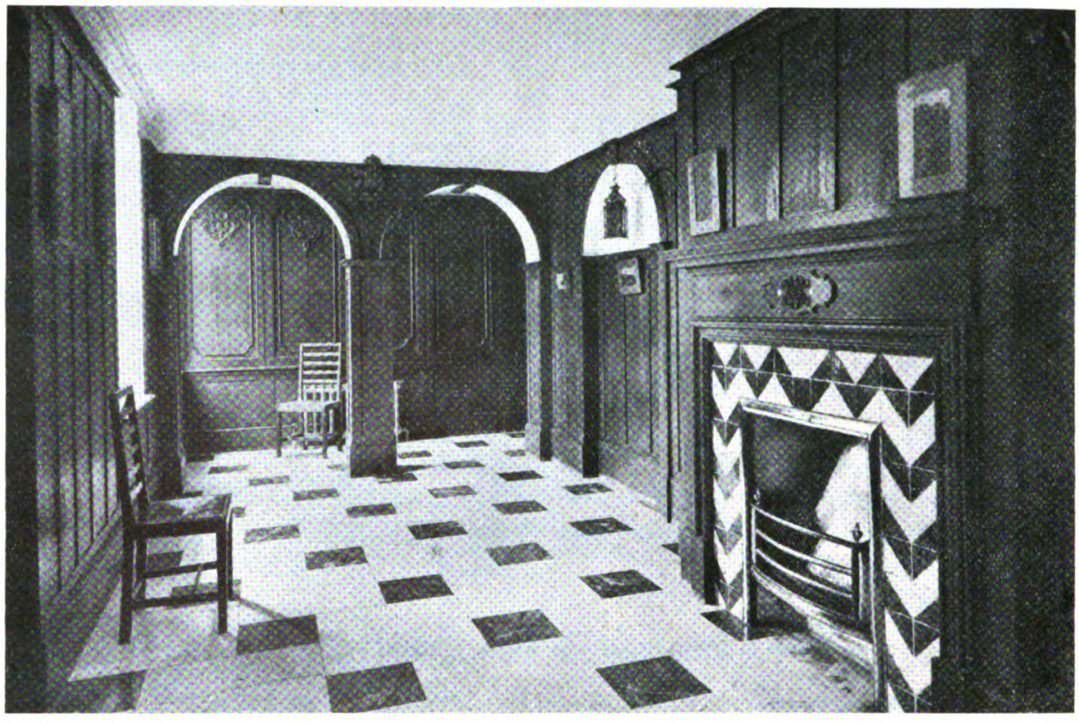
We are glad to illustrate this interesting house which was designed by Mr. Mervyn Macartney for himself, and is now for sale by private treaty. There are many opportunities now open to those who want a large and comfortable house which it would be quite impossible to build at the price at which they are offered, owing to the great increase of the cost of building—an increase which is not likely to be wiped away during the lifetime of anyone living. The house stands on high ground overlooking the village of Midgham and the Kennet and Enborne rivers, and is half-a-mile from the station on the main line between Reading and Newbury, so that it is within one and a-half hours' easy travelling from London. The views we publish show that the garden is one having exceptional attractions, while grounds which have an area of about 14 acres include an orchard, copse, and about 10 acres of paddocks. The whole property can be purchased for £8,000, a price which would at present not cover the cost of a similar house. Mr. Mervyn Macartney is known to us all as one of the inheritors of the traditions of Shaw, and, as the illustrations and plan we give show, the house is both a conveniently arranged and an interesting one, containing some panelled work brought by Mr. Macartney from old Dutch buildings in Holland.

Had we not been passing through unusually difficult times such a house would have found a ready purchaser at a much higher figure. As it is, the chief demand is for smaller houses which have been disposed of during the last few years at prices which are often absurd, but as soon as the public recognise that higher prices in building are likely to be permanent, and trade conditions are stabilised, such houses as this will once more be in demand, and there is little doubt that a house of this description would fetch a much higher price than that asked for it. As it is, we are glad to bring to the notice of our readers a house which is both good in design, delightfully situated, and to be acquired at a price which is unusually moderate.



THE STAIRCASE.

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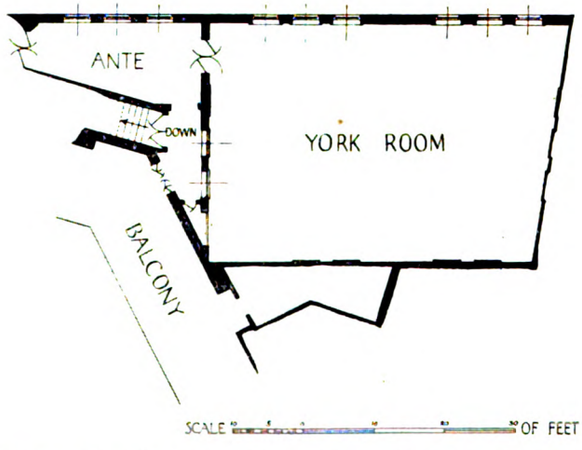


KENNET ORLEY, WOOLHAMPTON: THE HALL. MERVYN MACARTNEY, Architect.

York Room, Frascati Restaurant.

(See Inset Illustrations.)

The addition and redecoration of York Room, Frascati's, will add a considerable attraction to this already famous restaurant. The colour scheme is in gold and



green, expressing a very charming combination of mellow tints. The following are the principal contractors:—

Builders' work.—Messrs. G. Godson & Son, Ltd.
Ornamental Plaster work.—G. Jackson & Sons.
Decorations.—Robersons Ltd.
Marble work.—Burke & Co.

The work was carried out under the direction of the architect, Mr. Stanley Hamp (Collcutt & Hamp), 20 Red Lion Square, W.C. 1.

At the anniversary of the meeting of the Society of Antiquaries of London, the elections of officers and council for the ensuing year were held, and resulted as follows:—President, Sir C. Hercules Read, LL.D.; treasurer, Mr. William Minet; director, Mr. C. R. Peers; and secretary, Mr. Ralph Griffin. Members of the Council:—Mr. W. Paley Baildon, Mr. A. W. Clapham, Mr. O. M. Dalton, the Rev. E. E. Dorling, Mr. M. S. Giuseppi, Lieutenant-Colonel J. B. B. Karslake, Mr. C. L. Kingsford, Mr. P. G. Laver, Mr C. J. Praetorius, Mr. Harold Sands, Mr. C. O. Skilbeck, the Rev. Dr. H. P. Stokes, Dr. W. M. Tapp, LL.D., Mr. E. P. Warren, Sir Lawrence Weaver, Mr. E. A. Webb, and the Rev. H. F. Westlake, M.V.O.

Forthcoming Events.

Friday, May 19.—Industrial Council for the Building Industry (Building Trades Parliament). Quarterly meeting at Montagu House, Whitehall, S.W. Second Day. 10.30 a.m.

Saturday, May 20.—Northern Architectural Association.—Visit to Jarrow—St. Bede's Church, and Co-operative Buildings.

Monday, May 22.—Architectural Association. Meeting at 34-35 Bedford Square, W.C. Paper by Mr. Hilaire Belloc entitled "The Probable Effect on Architecture of the Decline in our Civilisation." Election of Officers and Council, Session 1922-23. 7.30 p.m.

Wednesday, May 24.—Royal Institute of British Architects. Annual Dinner at the Prince's Restaurant, Piccadilly. 6.30 p.m.

Thursday, May 25.—Royal Institute of British Architects. Public lecture at 9 Conduit Street, W., by Professor Ernest A. Gardner entitled "Greek Public Buildings." 5 p.m.

— Illuminating Engineering Society. Annual Meeting at the Royal Society of Arts, John Street, Adelphi. 8 p.m.

Friday, May 26.—Town Planning Institute. Meeting at the Institution of Mechanical Engineers, Storey's Gate, St. James's Park, S.W. Paper by Mr. Raymond Unwin, F.R.I.B.A., entitled "Zoning Proposals." 6 p.m.

— Institution of Municipal and County Engineers. Eastern District Meeting at Willesden. 10.30 a.m.

At the meeting of the Court of Common Council of the City of London it was reported that the amount expended on the City's housing scheme was £967,573. No further money was likely to be spent, as the whole scheme had been closed down. The question of selling the houses outright was under consideration.

The Corporation of Glasgow, at their meeting on the 11th inst., adopted without discussion a recommendation of their Parks Committee that the design by Sir John J. Burnet for the proposed Glasgow War Memorial cenotaph in George Square, in front of the Municipal Buildings, should not be approved.

If the number of suitable applicants is sufficient, the Board of Education will provide short courses of instruction for teachers in technical schools engaged in teaching building subjects. The courses will run from Monday, July 24, to Saturday, August 5, inclusive, and will be held at the London County Council Central School of Arts and Crafts and the London County Council School of Building. Particulars of the courses may be obtained from the Board of Education. The lecturers will be Mr. T. P. Bennett, A.R.I.B.A., Dr. Oscar Faber, D.Sc., O.B.E., and Mr. A. S. Everett.

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London Art Galleries.

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At Walker's Galleries last week, Miss Bridget Keir, who held a very successful exhibition in these Galleries some two years ago of water-colour drawings of London and Venice, has followed this up by an exhibition which is fairly equally divided between London and "The Sands and Waters of Egypt"—about fifty water-colour paintings of each—together with twenty subjects taken from Venice and the Lake of Como. The London subjects this time are extremely successful. The artist, as I know, worked through last winter under what were frequently extremely difficult atmospheric conditions, and may justly be pleased with the result of those labours. She has gone for the wonderful atmospheric effects—which that fine water-colour painter, Paolo Sala, once told me he enjoyed as much as his own Italy—offered by London; and gives us something of the magic touch of fog, though not, of course, in its most aggressive form, in such subjects as "Foggy Morning, Chelsea," "Foggy Morning, London Bridge," and "Foggy Evening, Westminster" (there are two of this subject) which are, to my judgment, among the best. In fact for pure technique the first mentioned of these, taken from the Chelsea Embankment which was so dear to Whistler, takes a very high place: the treatment of the reaches of flat, glistening mud in the foreground, and the roofs and chimneys behind emergent from the mist, is supremely clever, while the river scenes at Westminster take a very good second place.

The drawings of Egypt shown here represent, as I understand, a winter's work—the winter of 1921—spent in that delightful land of the past. It is quite an open question to my mind as to how far this land of the Pharaohs, with the almost overwhelming grandeur of its monuments, lends itself to this delightful impressionistic medium of modern water-colour art: certainly I feel this with such a subject here as "The Colossi of Memnon," which fails to impress me as I feel certain I should be impressed if ever I had the fortune to see the original. Where Egypt can be treated successfully in this medium is in its detailed beauties, such, for instance, as those picturesque boats on the Nile with their wide sails; and here Miss Bridget Keir is especially happy in such subjects as "On the Waters of Mena, Early Morning," or again "Sailing on the Nile," or yet again "Early Morning, Luxor." It is fair to add, even if it may seem to go against my previous contention, that she has some very successful drawings of the Pyramids, notably "The Pyramids of Giza, Early Morning," and a beautiful study of "The Pyramids in Moonlight," one of the best here. The Italian subjects are occupied frequently with Varenna, one of the most delightful spots (and when I knew it off the steamer track) on the Lago di Como; and I hope next week to illustrate a very charming drawing of the Venetian lagoons, its title—

"The fountain of perpetual peace flows there"

—which shows, as illustrating Longfellow's line, the island of Burano rising in the distance, across the expanse of quiet waters.

In the same Galleries are being shown, as I have already noted, a collection of drawings by Joseph Farington, R.A., whose remarkably interesting diary is now being published by the "Morning Post." Farington was quite a personality in his time, and merited his nickname of "Dictator of the Royal Academy." "How Farington used to rule the Academy," said Northcote to James Ward, R.A., "He was the great man to be looked up to on all occasions; all applicants must gain their point through him." In fact, in the diary, besides the occasional and illuminating political references, we find a stream of light on art and artists of the time, that time being the end of the eighteenth century. Joseph Farington knew them nearly all, personally, and often intimately. Richard Wilson was his master, with whom he lived and worked for years in the latter's rooms in the Piazza of Covent Garden: Thomas Lawrence was his intimate friend, and he was one of the first to discover Constable's genius in landscape art, and to predict his future success. Farington seems to have been completely taken in by a young lady named Provis, who claimed to have discovered, and to be ready to impart, for a fee, the "lost secret of Titian's colouring." This incident, in which he had been duped along with Opie, Stothard and other Academicians, gave Gillray the subject of his telling cartoon of "Titianus Redivivus, or the Seven Wise Men consulting the New Venetian Oracle."

Though not a prolific exhibitor, Farington showed regularly at the Royal Academy up till 1813. That he was a fine topographical artist and a good draughtsman may be seen from the drawings shown at Walker's Galleries, especially in such subjects as his "Bridgnorth,"—which shows fine architectural drawing,—his "Bucklwas Abbey,"—where the perspective of the arches with Norman detail is excellent,—his "Rosslyn Castle and Chapel," and the fine panorama of Loch Lomond. His colour is cold and unattractive; but then it was a later generation, with Girtin, Cotman, and Turner, in which British water-colour art became enriched with glorious colour. In the same Galleries an exhibition of water-colour drawings of Constantinople, Smyrna, and Cyprus, by Sylvia Concanen Dakin, mostly small studies, has often charming colour and warmth.

The Greatorex Galleries last week replaced their sculpture exhibition by one of the water-colour drawings of George Horton, who takes his subjects in this exhibition mostly from Tyneside or from Holland. Very quiet in key these drawings are effective, and excellent in their values. Mr. Horton has exhibited in Holland with success, and has lived and worked for many years in Rotterdam and Dordrecht. I noticed particularly among his Tyneside subjects "Cullercoats, Northumberland," and "Tynemouth, from the Durham Coast," and in the Dutch work "On the Stiegar Canal," "Rotterdam," and "A Bit of Holland." At the Fine Art Society the "North Country Sketches" in water-colour, by A. Reginald Smith, A.R.W.S., have the same reserved key of colour, with delightful atmosphere in such a scene as "The Blue Fell," while the larger room here contains a dozen clever oil paintings by A. J. Munnings, A.R.A., and twice that number of pictures, mostly portraits in oil, by Archibald Barnes, which have something of the clean direct character ("Colonel Chandos Pole," "The Viscountess Gladstone," and "June," a clever figure study in sunlight), which I noticed in some of George Henry's work in this year's Academy. The exhibition of water colours by W. Russell Flint, which opens at this Gallery on May 17, promises to be an interesting one. This artist appears ("Welling Waters," which I noticed at the Royal Water Colour Society) beside C. A. Hunt, Davis Richter, St. Clair Marston, Littlejohn, and others in a choice little water-colour exhibition recently opened at the St. George's Gallery.

I take last here the exhibition of work by Donald Wood at the Gieves Gallery, which seems to me to have remarkable variety and character. Mr. Donald Wood is a really fine animal painter, and had, I understand, studied in the Kemp Welch School in Paris. A very interesting painting here is "The Belgian Road," a sort of frieze, but illustrating a whole day's life during the war on a Belgian road, which the artist tells me was six to ten miles from the front, and used freely by the three Allied Armies—French, Belgian, and British,—being fairly free from the enemy's heavy artillery fire. "It is typical," said the artist, "of a Day. The left,—bright and gay, morning; the centre,—crowded and busy, midday; towards the right, more suggestive of weariness and finally of mystery and uncertainty," shown in the group of "poilus" disappearing into the twilight. The charcoal studies by the same artist—portraits and two studies of horses—are admirable in drawing. The next exhibition at Gieves Gallery will be "Portraits of Notable People," by Mr. Webster Murray.

S. B.

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Modern Methods in Building Construction.—XVII.*

By Albert Lakeman, M.S.A., M.C.I.

FOUNDATIONS ON SOFT SOILS—(*continued*).

Steel-sheet Piling.—The Lackawanna system of steel-sheet piling, which is extensively used in the United States of America, is manufactured in this country by the Cargo Fleet Iron Co., Ltd., of Middlesbrough, who are the sole licensees in Great Britain and the Colonies for this type.

The piles are made in two forms—viz., (*a*) the straight web, and (*b*) the arched web, the latter being specially recommended for cases where the conditions demand great lateral stiffness.

Apart from the advantage of steel-sheet piling generally over timber piling, the makers claim that the following points have to be considered in the selection of steel piles: (1) Simplicity and security of interlocking of piles; (2) strength of interlock to prevent rupture when hard obstacles are met with during driving operations; (3) flexibility of interlock to allow deviation from the intended course, so that an obstacle of any size can be circumvented and the original line picked up again without any

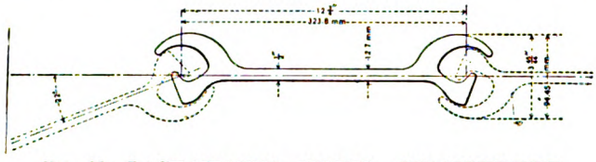


FIG. 95.—LACKAWANNA PILING. STRAIGHT-WEB TYPE.

special arrangements; and (4) dry walls in coffer-dam construction to save pumping, or to reduce it to a minimum where conditions make it a necessity. It is claimed that all these requirements are met by the Lackawanna system in a high degree. The nature of the interlock permits a deviation of about 20 degrees to either side of the centre line, and at the same time the material through which the piling is driven makes practically a watertight joint against the flanges forming the lock. The lock itself has been tested under very severe conditions, both in the laboratory and in the execution of contracts when unexpected difficulties have been met with in the course of driving.

In addition, it is claimed that the piles are easy to handle and place, as the locks are very free in every direction, and the same interlock is used in both types.

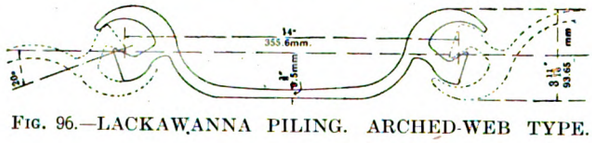


FIG. 96.—LACKAWANNA PILING. ARCHED-WEB TYPE.

The makers state that where no great lateral strength is required the straight-web type will answer all demands, even for circular work of as small a diameter as 6 feet 5 inches internally. This type can be supplied up to 60 feet long in one piece or 74 feet in two lengths. When working conditions demand greater stiffness laterally the arched web section is advocated, as it not only gives increased strength against buckling, but is particularly adapted for fixing the necessary waling to the web.

In both types the neutral axis runs through the centre of the lock, but in the arched-web type the web lies alternatively on either side of the neutral axis. The standard section of the straight-web type is illustrated in fig. 95, and the arched-web type in fig. 96. In the straight-web type the distance from centre to centre of interlock is $12\frac{3}{4}$ inches, the web is $\frac{1}{2}$ inch thick, and the weight per foot run is 40.4 lb. This gives a weight of 38 lb. per foot super for the piling when interlocked, or about 60 feet super to one ton. The section in fig. 95 indicates the manner in which the piling can be deflected 22 degrees from the centre line without the use of any special parts, owing to the flexibility of the interlock. In the arched-web type the distance from centre to centre of interlock is 14 inches, the web thickness is $\frac{3}{8}$ inch, and the weight per foot run is 40.83 lb. The weight per foot super of the piling when interlocked is 35 lb., and this gives 64 feet super of piling to one ton. The maximum deflection from the centre line of the piling with this type is 20 degrees.

The makers claim that the design of the pile and interlock is one which gives the maximum strength against



FIG. 97.—LACKAWANNA PILING JUNCTIONS.

pulling apart whilst being driven, and at the same time it is of simple form, with the material so distributed as to give the largest radius of gyration, and the friction area of the interlock is at a minimum; thus the driving and withdrawing is economical in the power required.

Several special forms of piles are made for corners, junctions, and special purposes, and a few of the standard connections to illustrate the methods employed are shown in fig. 97. Numerous examples of contracts where this type of piling has been used could be stated, these including work at H.M. Dockyard, Rosyth, in coastal defences, and at Baghdad, Mesopotamia. The illustration in fig. 98 shows some of the piling used at Baghdad, where irrigation work of considerable importance was carried out by Sir Jackson, Ltd., under the supervision of Sir William Willcox. This work was in connection with the development of the arid lands in the valley of the Euphrates River, and it was decided to construct large impounding

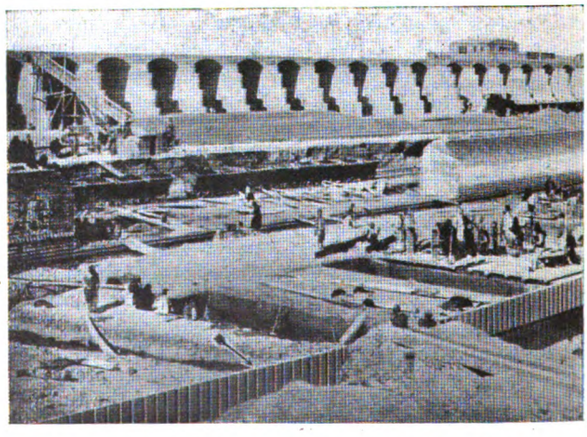


FIG. 98.—LACKAWANNA PILING AT BAGHDAD, MESOPOTAMIA.

*PART I.—I. Introduction, Steam shovels, Jan. 13; II. Steam shovels, Trench diggers, Jan. 20; III. Grab buckets, scrapers, Jan. 27; IV. Drag-line excavators, Feb. 3; V. Derricks and cranes, radial loader, paving-breakers, Feb. 17; VI. Surplus Soil Transport (Hand Labour), Feb. 24; VII. Surplus Soil Transport (Horse-drawn wagons, Steam-driven wagons), Mar. 3; VIII. Surplus Soil Transport (Steam-driven wagons), Mar. 10; IX. Surplus Soil Transport (Steam-driven wagons, Petrol wagons, Narrow-gauge track with wagons), Mar. 17; X. Surplus Soil Transport (Narrow-gauge track with wagons, Trucks on Standard-gauge track, Electrically-driven trucks and vehicles), Mar. 24.

PART II.—XI. Foundation Work (Ordinary soils, Soft soils), April 7; XII. Foundation Work (Soft soils), April 17; XIII. Foundation Work (Soft soils), April 21; XIV. Foundation Work (Soft soils), April 28; XV. Foundation Work (Soft soils), sheet piling, May 5; XVI. Foundation Work (Soft soils), steel-sheet piling, May 12.

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reservoirs, to be used in connection with the general irrigation scheme of this valley. The bed of the valley, at the site of one of these dams, was found to consist of sand for a considerable depth, and it was arranged to surround the base of the concrete foundations, or the footing course, with an impervious cut-off wall of continuous steel-sheet piling on the Lackawanna system driven to a depth sufficient to prevent underscouring of the sand below these concrete foundations. This work was so successful that the consulting engineer advocated a repeat order for this type of piling for cut-off purposes in another section of the scheme.

The United States steel-sheet piling sections, illustrated in fig. 99, are supplied in this country by the United States Steel Products Co., of New Broad Street, London, and they claim that this type has been supplied to the principal contractors all over the world. It is rolled in three sizes, and is of the straight web type with distance between the centres of interlocks of 9¼ in. or 13¼ in., the smallest section having a web thickness of ¼ in., and the larger section either ⅜ in. or ½ in. The

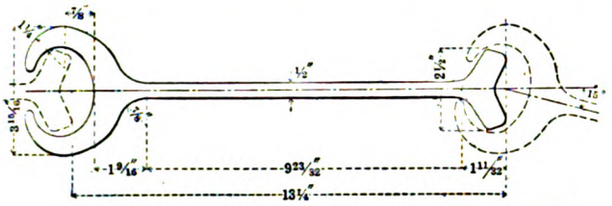


FIG. 99.—UNITED STATES STEEL-SHEET PILING SECTION.

weight per lineal foot varies from 16 lb. to 42½ lb., and the weights per foot super of the interlocked piling are 21 lb., 35 lb., and 38 lb., giving areas of 106½, 64, and 60 sq. ft. of piling to one ton respectively. It is claimed that the piles are simple plain rolled sections, ready for use direct from the mill, with the advantages of the ball-and-socket type of joint, with sufficient clearance in the interlock for ease in driving, and sufficient space for use of packing substances between the adjacent edges to secure watertightness. Other points raised as advantages are that contact between ball and socket is made by lines and not by surfaces, so that wedging action is prevented and maximum strength secured to resist forces in both lateral and longitudinal directions. Also the joints are flexible and permit entrance of silt and clay into the interlock to aid in securing watertightness. They also permit easy avoidance of obstacles encountered in driving and construction of circular or irregularly shaped pockets without the use of specially bent or fabricated pieces, the deviation from a straight line possible being 15 or 18 degrees. In making closures the flexible joints allow distances to be gained or lost by longitudinal displacement in the joints themselves, or by deflections from the straight line. They also aid in bringing the line of piling back to the vertical in either direction after a departure therefrom caused by the meeting of obstructions or by irregularities in driving. The makers claim that the interlock clearance is such as to ensure ease in installation and removal, but at the same time it is kept down to the minimum to make the piling as watertight as possible. Many of the points put forward by the makers of this type have already been dealt with in the previous notes, and it is not necessary to reiterate these.

Sufficient details of the various types of steel sheet piling made by the leading makers should be provided by the foregoing to enable the engineer and contractor to make a selection of the type most suitable for any particular piece of work. It is necessary to study the adaptability of the sections, the price per ton of the piling, together with the superficial area of the interlocked piling given by this weight of material, the size and strength of the section both for driving and to withstand pressure when in position, and the ease of driving and withdrawal, in addition to the usual matters of delivery and similar items which will be considered in the purchase of any material.

No prices are given for this work, because the quotation would be dependent on so many different factors which must be considered in connection with each particular scheme, and the cost of driving will vary under different conditions to an extent which makes it inadvisable to state any fixed amount. It is an important section of the work, however, and it will not prove economical to select piling and equipment which is comparatively cheap but unsuitable for the scheme in hand, as serious trouble may result and involve large expenditure for which no provision was made when estimating for the work.

The cost of the framing and strutting required is also an item that will vary considerably according to the circumstances of each scheme. The framing in course of erection previous to the driving of the piling in a simple scheme is illustrated in fig. 100, and it will be clear that an example of this nature will cost much less than that demanding the execution of the work under very adverse conditions.

Pumping.—When the steel-sheet piling is completed and the coffer-dam will permit the execution of the work under satisfactory conditions, provision must be made for



FIG. 100.—FRAMING FOR COFFER-DAM.

dealing with the water contained inside the barrier, and also for any leakages that may occur when the work is in progress.

Any excavation work can be proceeded with by means of grab bucket or other suitable appliance, and it is necessary to make the pumping arrangements so that same can be put into operation immediately, and the water level inside the coffer-dam should be kept down below the level

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at which the work is proceeding. This is done by forming a sump hole in a convenient position to which the water will drain, and during the sinking of the excavation the sump is deepened and the pump lowered in stages as required. When it is not possible to excavate the sump by hand owing to the soft nature of the soil, it can be quickly formed with a grab bucket and the pump can be suspended with the suction-pipe extending down into this sump. In all important work steam will be available, as the piles will be driven by a hammer operated by this power, and the application of a steam-pump will therefore be a simple matter.

In very small work or in cases where the amount of water to be dealt with is very little, hand-operated pumps may be sufficient, but, generally speaking, the provision of steam-pumps will be essential if the nature of the work is that which justifies the use of steel-sheet piling. The capacity of the pumps will be a simple matter, as the makers will supply one or more pumps to deal with any required quantity of gallons per hour provided the amount of water to be dealt with can be accurately determined. The difficulty will be to state with any degree of certainty the amount of water which will find its way inside the coffer-dam. The makers of the steel-sheet piling will claim that their material gives a watertight wall, and this claim could be justified under ideal conditions, but it must be remembered that a fault may occur during the driving of the piles which will result in a leakage of water, and, if any provision is to be made, it must be based on an assumption only, until such time as the actual conditions are known.

If the space within the coffer-dam is a large one and this is practically full of water the pumping capacity can be arranged in the first instance on the necessity of getting this emptied in a certain specified time on the assumption that the leakages will be negligible. After the pumping has commenced records of the water level at stated intervals can be made, and it will then be a simple matter to determine the amount of water, if any, which is finding its way through the coffer-dam, as the capacity of the pump will be known and the distance the water level should be lowered for a given period can be calculated. The difference between the calculated level and the actual level from the records will represent the amount due to leakage at each stage. The amount of leakage will, of course, be likely to increase as the water level inside the coffer-dam is lowered, as there will be a greater head of water on the outside, but again many small leaks will become silted up as the flow of water carries the soil into the joints, and some allowance can be made for this. If the pumping capacity provided at the outset proves to be insufficient owing to the leakage being abnormal then an additional pump can be installed without difficulty.

It must be remembered that the capacity of the pumps must be sufficient to deal with the whole of the water as it finds its way inside the coffer-dam and to the sump in order to keep the water level down at all times below the line at which work may be proceeding.

The pumping must also be continued night and day, or the accumulation of water at night will be liable to cause damage to work already executed or cause delay in starting work in the morning until the water has been pumped out again. When the leakage is small it will not be necessary to run the pumps continuously if a large sump is provided which will draw off the water for a period, as the pumping can be operated when necessary to empty this sump only and a saving in power may be effected. Where water percolates up through the bottom of the excavation and a watertight structure has to be made, it will be necessary to keep the sump and pump on the outside of the structure and within the coffer-dam with sufficient capacity to keep the water level down below the floor-construction level at all times during the operations, or, if this is not possible and the pump and sump must be kept within the building, it is necessary to sink a pipe into the ground to receive the pump suction, and the work is executed right up to the point where the pipe is placed while the pump is operating, and when it is necessary to complete the seal, the pump is operated at its maximum capacity for a few hours, the suction is withdrawn, and the pipe let into the ground is properly capped off. This last operation is carried out quickly before the water has time to rise up to the top of the pipe, and the latter is provided with a flange or screwed cap which can be easily installed.

When the cap is securely fixed the top of the pipe is concreted over and the work at this point can be completed. The surface water on the site of the Royal Automobile Club in Pall Mall was dealt with in this manner, and the pipe through which the pump suction operated was situated in the lowest part of the swimming bath in the basement floor. After the pipe was capped over and the concrete placed, the asphalt lining was completed, together with the floor proper, and no leakage whatever occurred after the work was finished.

(To be continued.)

R.I.B.A. Colour Competition.

No less than 170 designs were received in the Colour Competition, for premiums amounting in all to £200, arranged by the Royal Institute of British Architects. The assessors were Mr. T. E. Collcutt, P.P.R.I.B.A., Professor Gerald Moira, and Mr. Halsey Ricardo, F.R.I.B.A.

Owing to absence Sir Edwin Lutyens, R.A., and Mr. William Walcot were unable to act.

The assessors carefully considered the designs sent in, and made the following awards:—

First Premium, £100: No. 147—Mr Arthur E. Pearce, 8 Herondale Avenue, Wandsworth Common, S.W. 18.

Second Premium, £50: No. 93—Mr. John S. Lee, A.R.I.B.A., 2 Bedford Square, W.C. 1.

Third Premium, £30: No. 130—Mr. G. L. Owen, Dockmaster's House, King George Dock, Hull.

Fourth Premium, £20: No. 78—Messrs. H. S. Fleming, A.R.I.B.A., and W. J. Kieffer, 83 Pall Mall, S.W. 1.

Honourable Mention.

No. 32.—Mr. Elfric H. Smith, 82 Broomwood Road, Clapham Common, S.W. 11.

No. 61.—Mr. Frederick Barber, "Carisbrooke," Marlborough Road, South Woodford.

No. 84.—Mr. Harry Simeon, 83 West Side, Clapham Common, S.W. 4.

No. 86.—Mr. H. F. Billimoria, School of Architecture, University of Liverpool.

No. 90.—Mr. H. F. T. Cooper, The Two Gables, Box Ridge Avenue, Purley, Surrey.

No. 120.—Mr. Hugh Mackintosh, 1 Imperial Buildings, East Croydon.

No. 146.—Mr. W. J. Palmer Jones, 11 Buckingham Street, Adelphi, W.C. 2.

No. 158.—Mr. Frederick J. Horth, A.R.I.B.A., 19 Albany Street, Hull.

The assessors state in their report that they consider "the drawings sent in represent a very gallant attempt at a solution of the problem set."

The designs submitted will be publicly exhibited in the R.I.B.A. Galleries, 9 Conduit Street, W. 1, from Monday, May 22, to Friday, June 2, inclusive. The Exhibition will be open to the public (free) between the hours of 10 a.m. and 5 p.m.

At the last meeting of the Council of the South Wales and Monmouthshire University College, Cardiff, it was reported that the subscriptions to the appeal fund amounted to date to about £80,000. The Finance Committee reported that the bequest of the late Sir Archibald D. Dawnay to the South Wales Institute of Engineers had enabled the College to offer an "Archibald Dawnay" Scholarship of the value of £50 a year, tenable for three years, for competition at the entrance scholarship examination held in April last.

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Unification and Registration.

The following is the Minority report on the subject of Unification and Registration:—

The following is an expression of the view of a minority of Members of the Unification and Registration Committee on the statement on Unification issued by that Committee:—

We are strongly in favour of Unification, but submit that the scheme suggested by the majority of members of the Committee is not one that is likely to obtain it. Fundamentally it is entirely an optional scheme, under which men outside the Institute are to be allowed to join without passing any examination, and subject only to the approval of our Council, to a joint Committee of the R.I.B.A. and the Society of Architects, or to some other tribunal to be appointed. But, as under the scheme, there must be architects who are either rejected or who do not desire to join the Institute, there can be no Unification of the profession, and it is obvious that the only way to obtain it is by a Registration Act giving legal power for its enforcement.

It was urged at the last meeting that the Associate Members of the R.I.B.A. strongly resent any admittance to their class without examination. However, as the Unification Committee, although asked to do so, would not insert in their statement a clause relative to any test, it will be possible, under their proposals, for an indefinite number of men to become Associates of the Royal Institute of British Architects without passing any examination. This wilful omission of a saving clause clearly indicates that the majority of the Committee is in favour of admitting unexamined men to that class, although the proposal is entirely contrary to the views expressed by many of our Associate Members. We trust Associates will strongly oppose the scheme, not only on that account, but for other reasons mentioned in this Report.

There are over 2,000 men in the Allied Societies who are not members of the R.I.B.A., and it is absurd to suggest that they should be admitted to the Institute with a view to the Unification of the profession, for, at the present time, these Societies elect representatives to the Council of the R.I.B.A.

Unattached architects are bound to exist, and, apart from them, the Institute can now claim to represent every architectural society in England, except the Society of Architects. As, however, this Society was founded, primarily, with the view of obtaining Registration, it could not consistently oppose the principle of any Registration Bill, and, although it might object to details, doubtless agreement would ultimately be brought about. Consequently, we submit that, apart from unattached architects, a united profession could at once approach Parliament with a view to obtaining Registration. We fail to see why Members of the Society of Architects and our Allied Societies should be allowed to enter the Institute without passing the statutory examinations. The Architectural Association is practically allied to the Institute, and the Official Architects' Association is desirous of working with the Institute in every way. For these and other reasons we consider that the Committee's scheme of Unification is absolutely unnecessary, and we also regard the proposal to throw open the coveted membership of the Institute to all and sundry, without the test of a professional examination, is fraught with great danger to the future welfare of the R.I.B.A. During the final deliberations of the Committee efforts were made—but unfortunately without avail—to elicit a plain statement of the intentions implied by the term "grouping into an organic whole within the Royal Institute of British Architects" of architects "properly so called." In our view, it is deplorable that a policy expressed so ambiguously should be promulgated.

It will be seen at once that acceptance of the Committee's policy involves an entire change in the character of the R.I.B.A. as now constituted, and members are reminded that the present value of the Royal Institute to architects results from its having stood, from the time of its foundation, for what is best in architecture, and that it has appealed to and gained the adherence of its members precisely for the reason that it has required and maintained a high standard of architectural qualification from those connected with it. But for this, it is obvious that the worthy men within its ranks who have brought credit to architecture and developed a high standard of professional ethics would not have entered its portals. We are now asked, under the Unification policy proposed by the Committee, to go back on these conditions and to accept the principle of admitting men into the Institute on a footing never before contemplated, and in a manner that, as it appears to us, must inevitably result in changing materially the whole standard of value upon which, hitherto, the Royal Institute has been judged.

Apart from rare exceptions, made in the case of architects of distinction, membership of the R.I.B.A. is now only obtainable by those who can satisfy the increasingly high standard of qualification required by the Examination Board. But under the Committee's proposals these salutary restrictions must, obviously, be set aside, as it is clear that students will not work for and undergo difficult and costly examinations when they realise that others may be admitted by means that demand little or no sacrifice.

In the terms of the document to which we refer, Unification is said to be desirable, inter alia, *because* the "Institute, so constituted, would become numerically larger than any existing bodies, and thereby proportionately more influential." We consider this principle to be entirely false, as that which makes a learned body influential, and causes it to command public respect, is *not* the number of its members, but the *nature of the qualifications required for its membership.*

Again, whilst, as set forth in the statement, it is no doubt quite true that some of the now unattached architects and others "will not decline the advantages which inclusion (in the Institute) will obviously offer," it is, in our opinion, outrageous to claim that such admissions "will not derogate from the prestige and interest of those existing members whose membership of the R.I.B.A. is based on qualification by examination or other test."

Moreover, the Institute, regarding its representation of architecture and its control of architects in this country, is already, many times over, numerically larger than any other architectural society as at present constituted, and the recognition given to the value of its membership is adding to its numbers at an increasingly rapid rate. There is, in fact, every reason to suppose that if the present basis of the Institute is consistently preserved it will represent, before long, all that need be seriously considered in matters architectural. It is because we think this and moreover because we consider that the great body of the Institute members will adopt the same view when they realise the vital importance of the principle now imperilled, that we express our most emphatic disagreement with the sequence under which the "Unification" policy so-called, is to be carried out. To suggest that "Unification," which involves combination with architects who do not, necessarily, hold similar views either upon architecture or ethics with those now adopted by the Institute would assist Registration is, in our opinion another entirely incorrect assumption. We see no reason whatever why the Institute should not proceed at once with the promotion of a Bill for the statutory registration of architects, and thereby ascertain, in a practical way, whether Registration is, in fact, obtainable.

As the only body of architects existing in this country that has the slightest chance of promoting a Registration Bill with any success, it is difficult to understand why the Institute, representing as it does, with comparatively few exceptions, all the reputable architects of the country, should hesitate to adopt a policy for the benefit of the whole profession which it, and it alone, has any chance of carrying through with success.

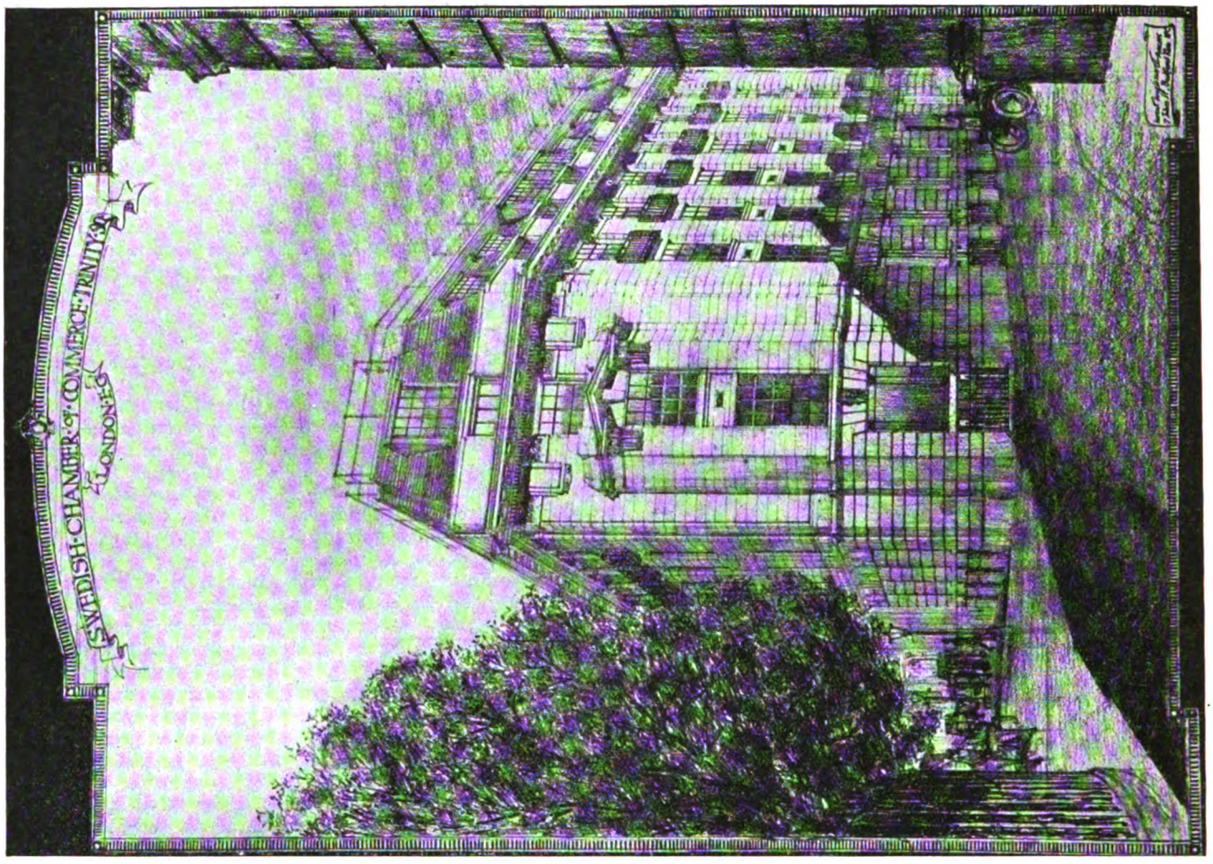
Finally, without absorbing time in the useless discussion of details attached to a principle we believe to be entirely wrong, and altogether disastrous to the future success of the R.I.B.A., we beg to record our emphatic disagreement with the Unification Committee's proposals, and we hereby recommend as an alternative policy that steps be taken forthwith by the Institute to promote a Bill for the Statutory Registration of Architects, and in the meantime to preserve its membership on the present basis.

Incidentally we recommend also that measures be adopted to secure for the Associate Members of the R.I.B.A. the full voting powers, hitherto enjoyed solely by the Fellows, and thus enable our younger members to participate in the affairs of the Institute to an extent to which they are entitled.

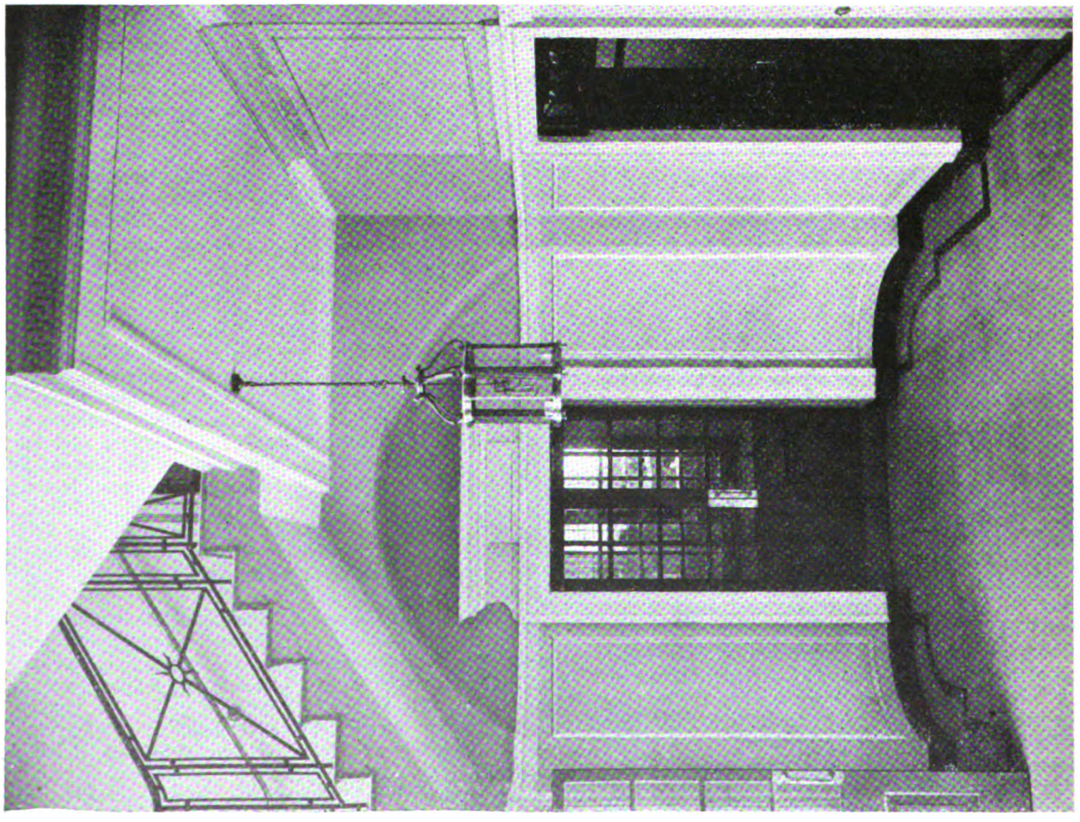
Mr. C. B. Flockton, of Sheffield, has written to the Unification and Registration Committee to express his disagreement with its statement on Unification, but as he was unable to be present at the last meeting we have not asked him to sign this minority report.

ALFRED W. S. CROSS,
Vice-President, R.I.B.A.
SYDNEY PERKS,
W. E. RILEY,
DIGBY SOLOMON,
Members of the Unification and Registration Committee.

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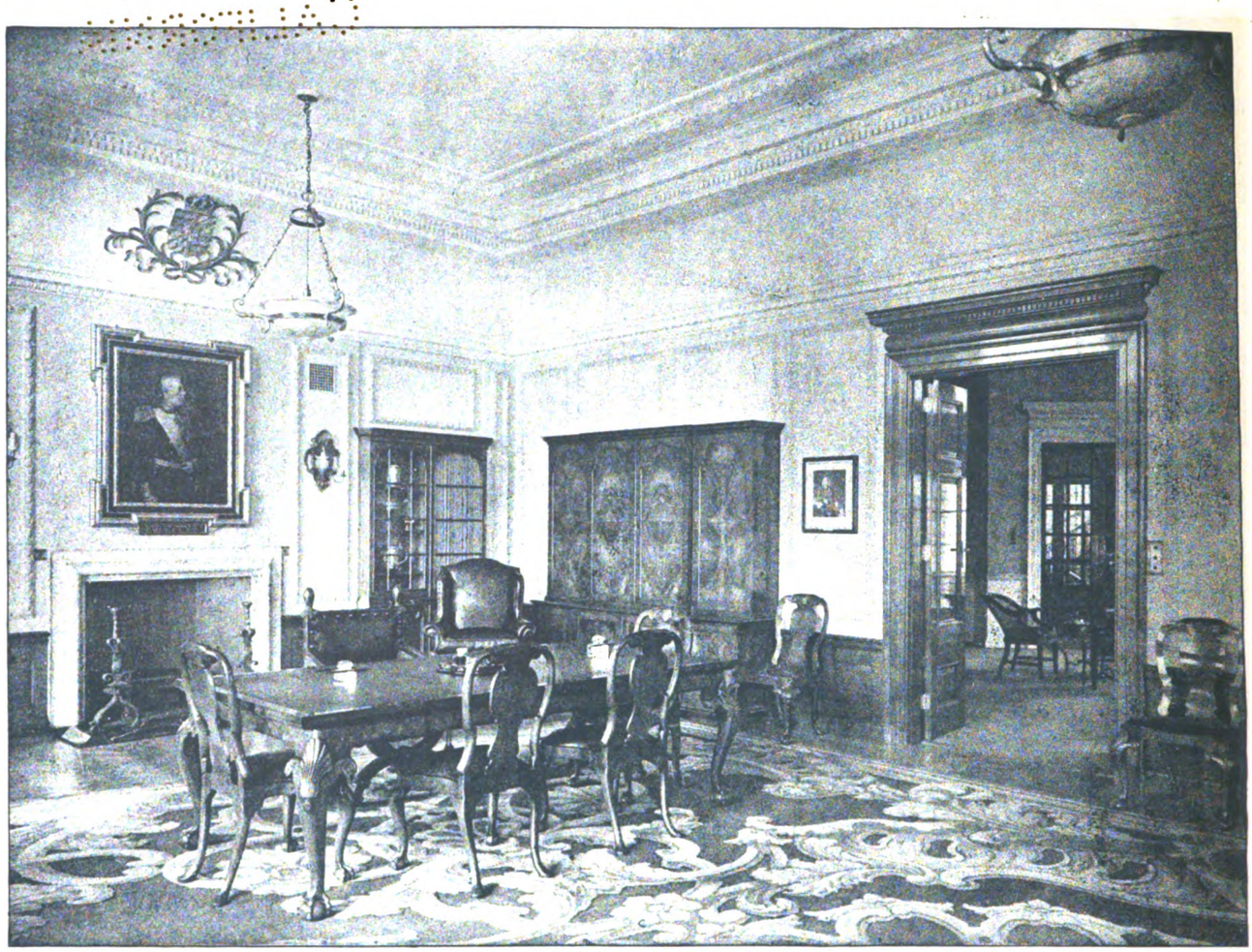


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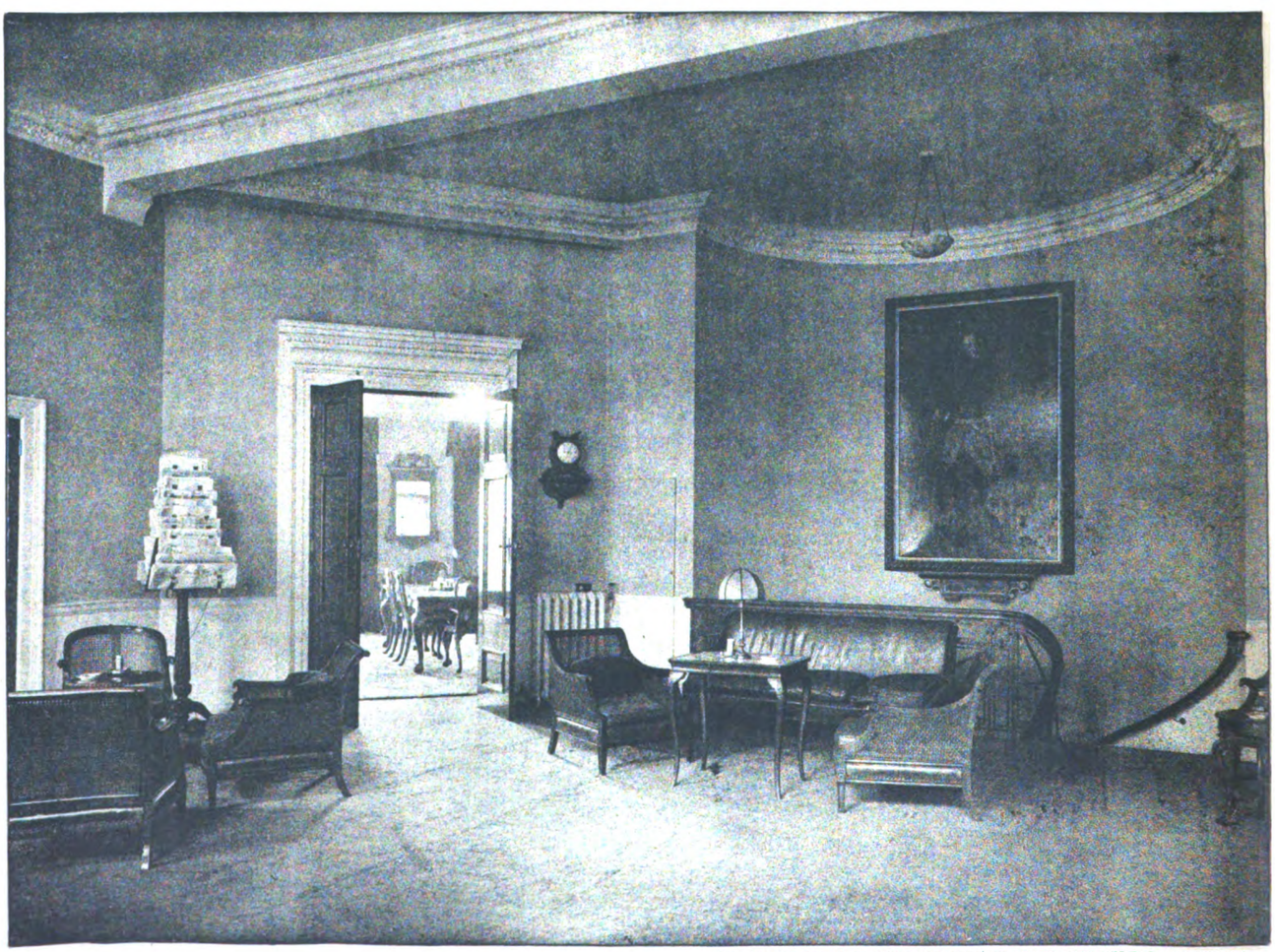
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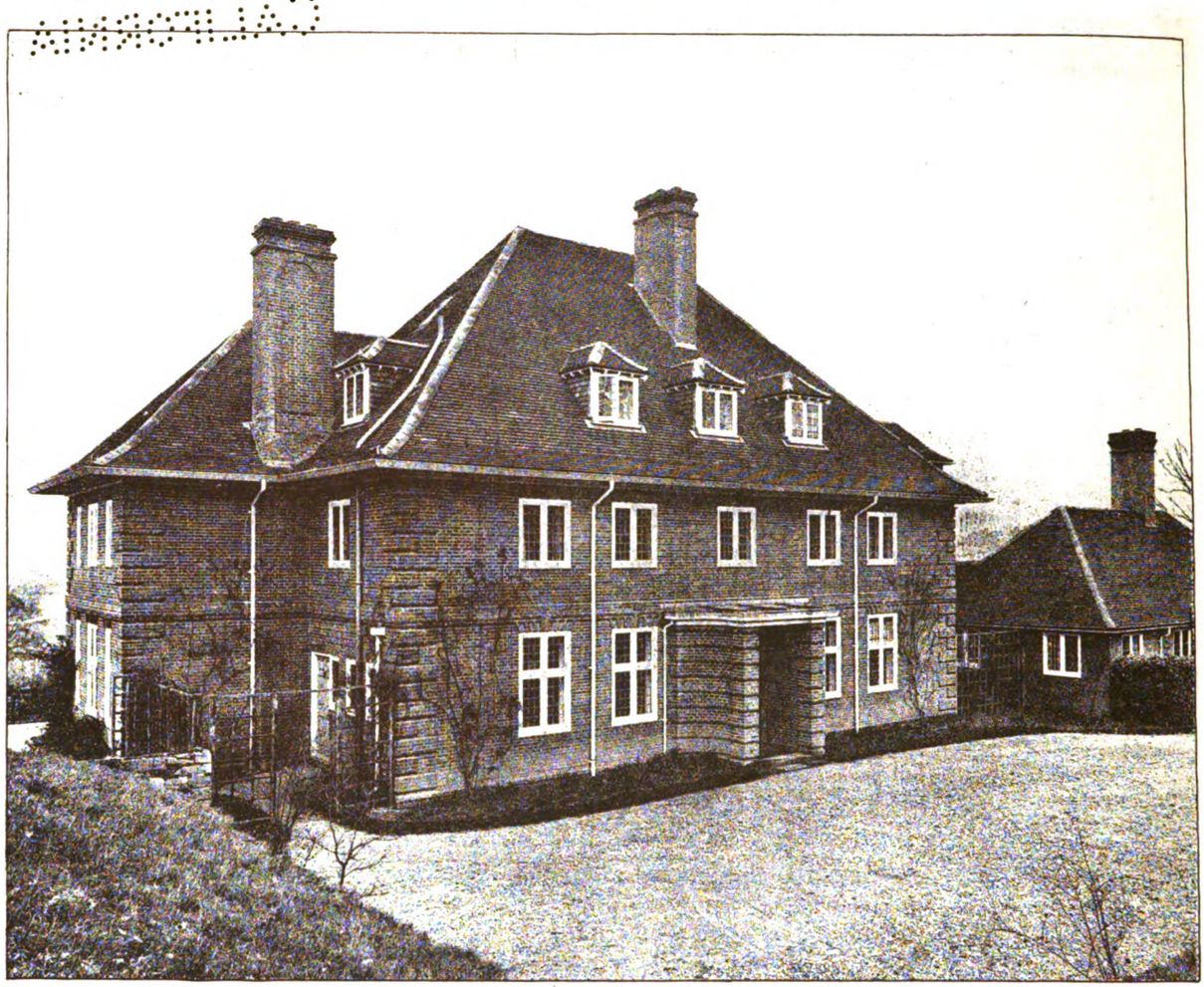
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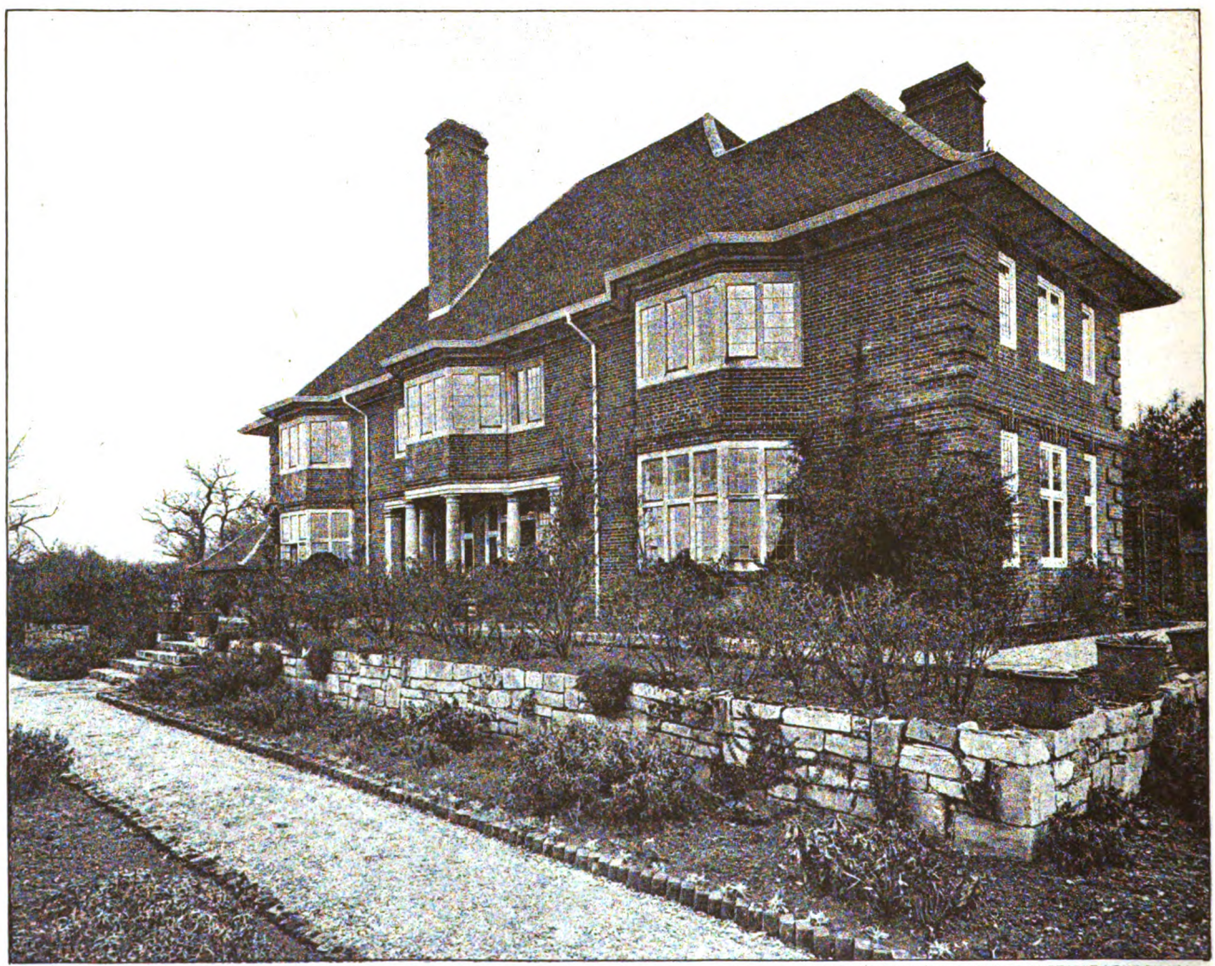
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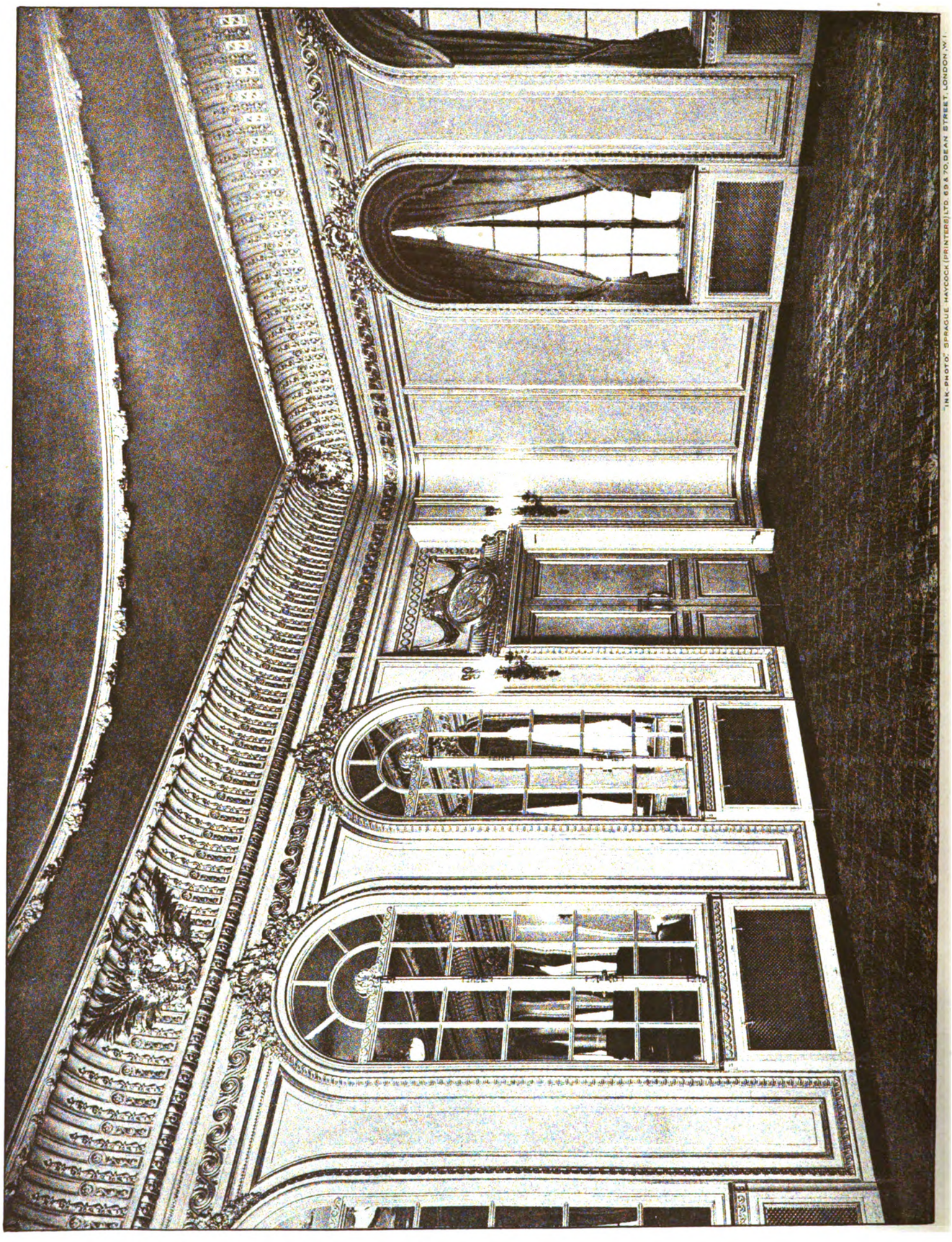
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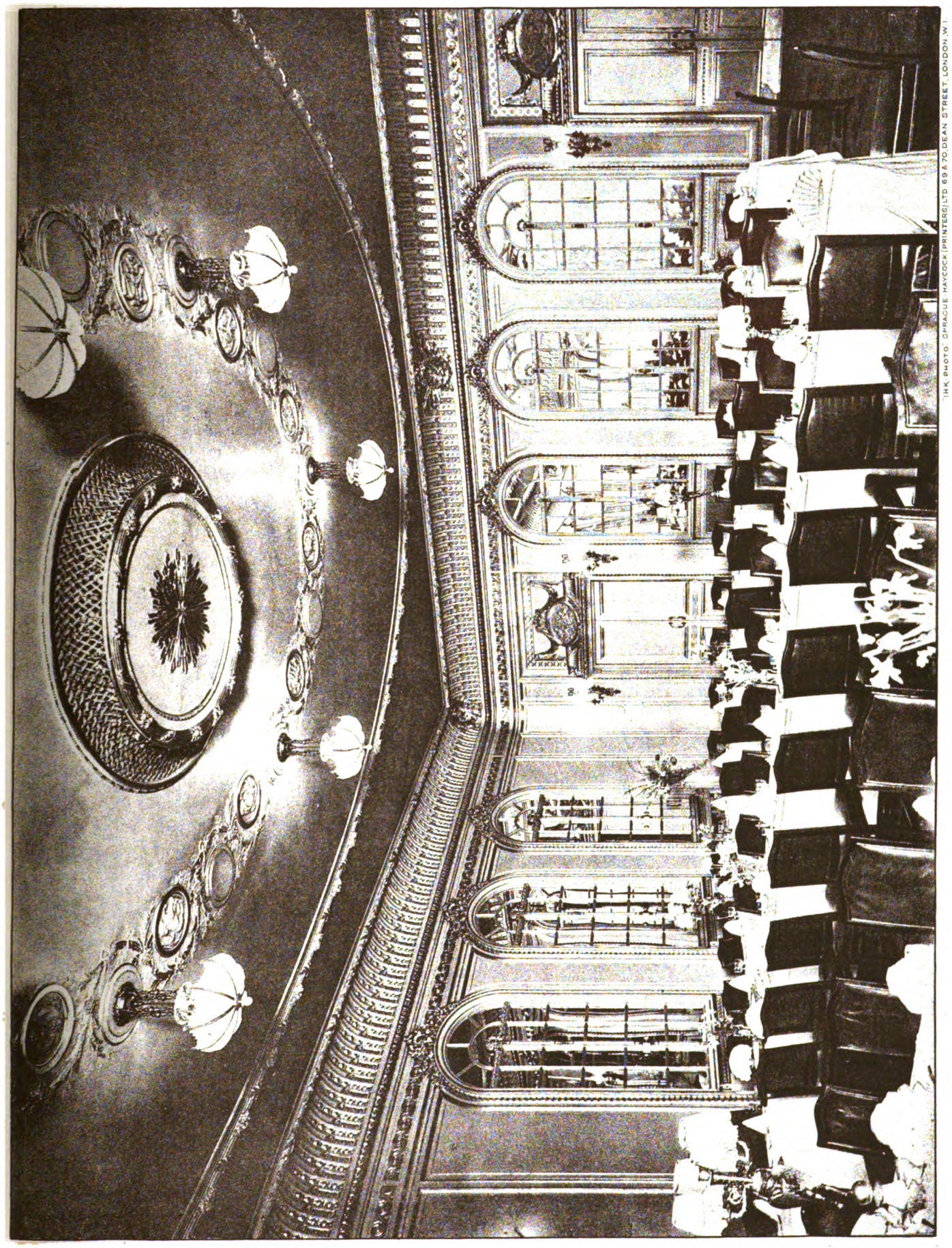
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HOUSE FROM GARDEN.



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GARDEN FROM HALL

KENNET ORLEY, WOOLHAMPTON, BERKS.

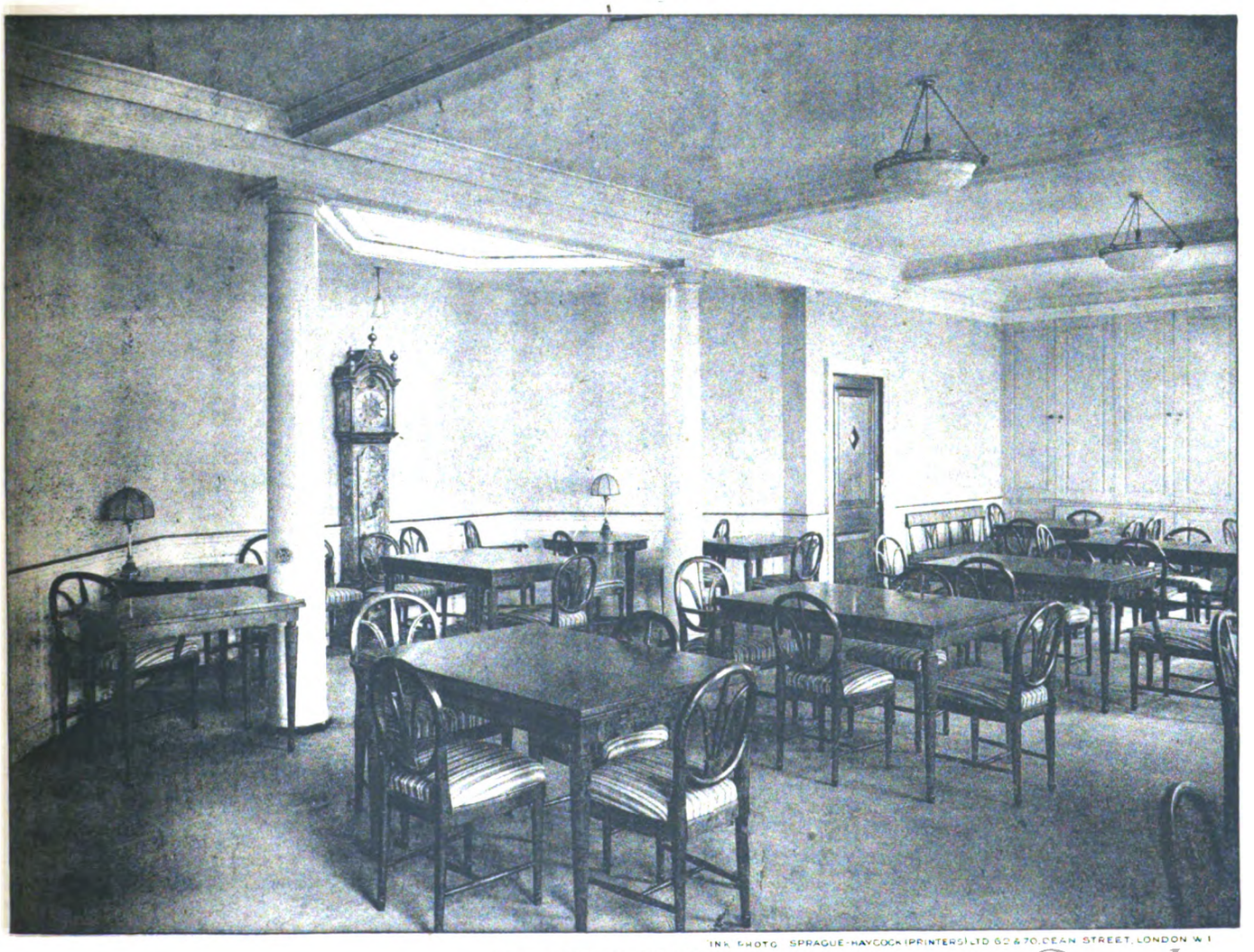
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THE COUNCIL CHAMBER.



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THE DINING ROOM.

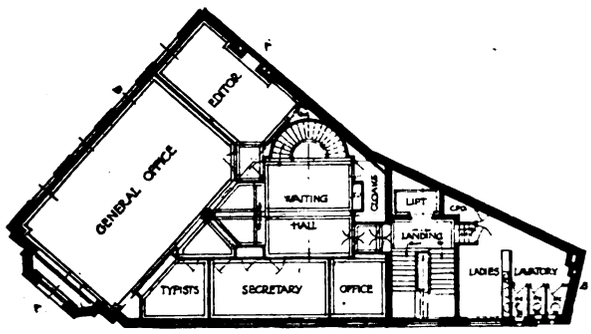
SWEDISH CHAMBER OF COMMERCE FOR THE UNITED KINGDOM, 14, TRINITY SQUARE, LONDON, E.C.

ESWORTH, BELFAST.

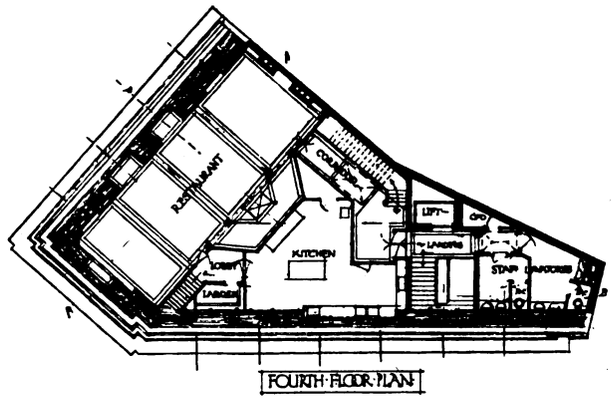
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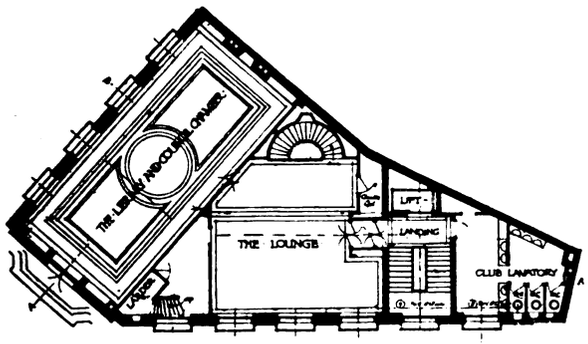
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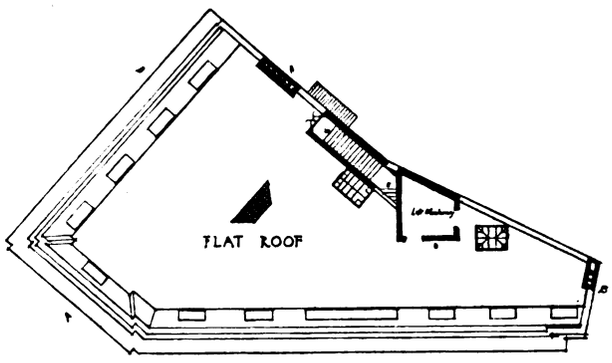
SECOND FLOOR PLAN



FOURTH FLOOR PLAN



THIRD FLOOR PLAN



ROOF PLAN

The Swedish Chamber of Commerce, Trinity Square, E.C.

(See Inset Illustrations.)

The new headquarters of the Swedish Chamber of Commerce have been erected on the historic site of Trinity Square, and, together with the Port of London Building, Trinity House, and the Tower, will form a group of interesting buildings of the first importance and interest. Simple as the design is, it possesses a dignity and meaning which is absent from many more imposing buildings and is worthy of its purpose—the promotion of trade relations with the most powerful and influential of Scandinavian States, which has played so large a part in the history of Northern Europe, and which under the great Gustavus Adolphus was the foremost Protestant protagonist in the great Thirty Years' War. Now that the States bordering on the Baltic have been enlarged by the freeing of the populations of Poland, Finland, Esthonia, and Courland from foreign domination, Sweden may be expected to play a larger and more important *rôle* in European history, which may recall her historic past when she and not Prussia was the dominating power in the Baltic.

The building covers the whole of an irregular site, and has been skilfully planned by Messrs. Niven & Wigglesworth so as to dispense with the necessity of internal areas.

Both the planning and detail of the building are distinguished by dignity without being frozen into formalism, and are the work of men who have assimilated classic traditions while avoiding unnecessary formalism. The upper three floors are occupied by the owners, and the second floor consists of the business offices of the Chamber; the third and most important floor contains the lounge, library, and Council Chamber; the fourth floor, the club dining-room and kitchen quarters, and access is arranged from the dining-room to the flat roof, from which fine views can be obtained. Constructionally a single column gives support to the office floors and supports the main beams, and a concentrated load of 300 tons carried by the column is distributed to a block of reinforced concrete 17 ft. 6 in. square and 2 ft. thick. The load of the walls is distributed over a base of reinforced concrete 10 ft. 6 in. wide and 2 ft. thick.

The general contractors for the building are Messrs. Holliday & Greenwood, of Corunna Works, Battersea. The principal sub-contracts have been carried out by the following firms:—Stuarts' Granolithic Co.: Reinforced-concrete raft and staircase and granolithic paving; Moreland, Hayne & Co.: Constructional steel work; Kleine Fire Resisting Flooring Syndicate: Fire-resisting floors; Dent & Hellyer: Drainage, sanitation, and plumbing; Nicholson: Heating and ventilation; Pearse & Co.: Steel casements; C. Hall: Wrought ironwork; Haywards, Ltd.: Pavement lights and fire-escape stairs; Acme Wood Block Flooring Syndicate: Wood-block flooring; Bryon: Marble, wall tiling, and terrazzo; Waygood Otis: Passenger lift; Lawrence Turner: Fibrous plaster and stone carving; Electrical Installations: Electric lighting and bells; Briffault Range Co.: Kitchen fittings; Yannedis & Co.: Door furniture and ironmongery.

"The Architect" Fifty Years Ago.

MAY 18, 1872.

We know of a shrewd and genial-hearted old gentleman who declared, in discussing the proper style of training English girls for the higher occupations of social and domestic life, that he would, in the exercise of a possible tyranny, at once set fire to all the private pianos in the kingdom. With a kindred feeling we confess to a disposition to destroy every "box of instruments," in order that the architectural student might have some chance, by free-hand power, of becoming an artist, and ceasing to be merely a "clerk." No great architect ever depended on mechanical instruments of brass or steel for the realisation of his conceptions. It is true that every architect must produce his conceptions on paper as a clerical necessity, in the modern practice of the profession; but there is no earthly reason why every architectural student should not be trained to the use of hand and eye in a manner which would enable him, if shut up in a room with nothing but a half-quire of paper, a scale, and pencil, to produce the completest of designs for the practical work of building. If he has no feeling of design or sense of artistic beauty in him, it is a certainty that not the most elaborate and complete case of instruments will ever help him to produce what one can recognise as good architecture, if it is to be recognised as an art at all.

The Royal Surrey County Hospital Committee are now issuing an appeal for £30,000 required for extensions. A scheme has been prepared by their architect, Mr. E. L. Lunn, in consultation with Mr. H. Percy Adams, F.R.I.B.A.

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Correspondence.

Unification and Registration.

To the Editor of THE ARCHITECT.

SIR,—With regard to Mr. Keen, frankly I cannot understand him, referring to a recent circular by the Defence League he writes on the points set out, and states: "The second one suggests that the present system of admission to the Institute is to be dropped. Nothing of the kind has been suggested or intended." At the meeting of the Institute on February 7 Mr. Keen and his friends objected to a resolution drawn up on similar lines, although 112 men voted in favour of it and only sixty-six against it.

With reference to Mr. Welch's letter, the Scheme is called Unification, but provides no machinery to ensure it. Optional schemes are useless. Unification can never be obtained except by compulsory powers in consequence of the passing of a Registration Act. Mr. Welch writes: "All architects not at present within the R.I.B.A. must be brought within it." How is he going to do it? I hope he has seen Mr. Keen's letter.

One very important fact should be firmly fixed in the minds of all Associates. At the recent meeting of the Unification and Registration Committee it was proposed and seconded that there should be no admittance to the Associate class except by examination; the resolution was voted on and rejected by a large majority. This fact speaks much more eloquently than dozens of evasive and indefinite official memoranda, or letters from members of the Committee.

I see we are again asked to withdraw all criticism and opposition until the scheme is worked out in all its details. Now let us see what has happened: the Unification and Registration Committee passed certain resolutions giving the main basic principles of the scheme; they were published, presumably for the information and consideration of all architects, and they were forwarded to our Council. In the first place, if the Committee did not want criticism at this stage, why did they publish a scheme before all the details were worked out? and again, when our Council considered the scheme, Mr. Keen and his friends did not say "Please don't do anything, it is most unfair to pass any resolution or express any opinion at the present moment, please wait until you know all the details." Not a bit of it, the Council had no hesitation, the majority were in favour of the scheme, and the fact that the Council had approved it was advertised widely and used for all it was worth. Now, when the general body of members starts to consider the scheme and do exactly what the Council did, the Members of the Unification and Registration Committee cry out in pious horror, "Please don't criticise now, it is most unfair to express your opinion until you know all the details."

Just imagine an architect submitting eighth-scale drawings to a client who wanted a house built, and the client saying, "I don't like your design," and then picture to yourself the architect saying in a dull, ponderous, Pecksniffian manner, "My dear Sir, you pain me! really this is most unkind; honestly you have no right to object at the present moment—*you wait until you see my full-size details.*"—Yours, &c.,

SYDNEY PERKS.

Guildhall, E.C.

To the Editor of THE ARCHITECT.

SIR,—I notice that Mr. Keen's letter, published in THE ARCHITECT of the 12th inst. in the form of a reply to the circular issued recently by the R.I.B.A. Defence League, contains the following statement:—

"The second one suggests that the present system of admission to the Institute is to be dropped. Nothing of the kind has been suggested or intended."

For your readers' information I send you the following extracts:—

(1) Report of the Unification and Registration Committee (signed by Mr. Keen) ". . . revision of the present Charter in order to admit architects who have not passed the qualifying examination." (R.I.B.A. Journal, May 28, 1921.)

(2) "Members of Allied Societies . . . will be admitted . . . also unattached qualified men after scrutiny by the Council of the R.I.B.A." (President of the R.I.B.A. at Liverpool, R.I.B.A. Journal, July 30, 1921.)

(3) ". . . the invitation should go to all architects who are qualified, and, further, that these architects should enter the class for which they are qualified." (Mr. Keen, R.I.B.A. Journal, June 28, 1921.)

(4) "The intention was to invite all qualified architects to make application to enter the class for which they were qualified." (Mr. Keen, at Liverpool, R.I.B.A. Journal July 30, 1921.)

(5) "This scheme was . . . bring within its membership all qualified architects." "It was not intended to admit men broadcast without reference to their qualifications." Referring to admittance without examination, Mr. Keen said, "I wish to point out once more that there is, and has been, no question of admitting any but qualified men." "It is proposed to set up a Board of Incorporation which shall be the sole judge of the qualifications of candidates." (R.I.B.A. Journal, January 14, 1922.)

I think it advisable to make no comments on these extracts, but it would be interesting to hear Mr. Keen's explanation of the above conflicting statements.—Yours, &c.,

ALFRED W. S. CROSS.

46 New Bond Street, London, W. 1, May 15, 1922.

Unification and Registration Committee.

To the Editor of THE ARCHITECT.

SIR,—With reference to Mr. Perks's observations on the constitution of the Committee, may I invite attention to it from another point of view?

Of the sixty-seven members, fifty-four belong to the Institute, and of the remaining thirteen, four represent Allied Societies, one represents the A.S.A.P.U., five represent the Society of Architects, and three are unattached to any architectural body. The Committee to all intents and purposes is therefore an Institute Committee, which is probably the reason why the business during the last twelve months or so has consisted principally of matters affecting the Institute alone, in regard to which the outside members have no *locus standi*. Therefore, whatever may be the merits or demerits of the Memorandum issued by the Committee, it represents the considered views of a body of men of whom the great majority belong to the same Institute as the members who have signed the minority report.—Yours, &c.,

C. MCARTHUR BUTLER,
Secretary.

The Society of Architects,
28 Bedford Square, W.C. 1.
May 12, 1922.

"Current London Prices."

To the Editor of THE ARCHITECT.

SIR,—In your issue of the 5th inst. it was my privilege to reply to the request of Messrs. Hugh Symington & Sons, Ltd. for the London prices of 1 to 5, as also 1:2:3 concrete by giving a detailed analysis built up strictly upon the London Custom basis, with the object that the items might be individually examined and adjusted to suit any local and specification conditions if so desired.

Portland cement may vary from 75 lb. to 110 lb. per cubic foot in weight, and 90 lb. per cubic foot is an accepted weight, but the London Custom, which was the subject under review, weighs 77¾ lb. per cubic foot, a ton being composed of eleven sacks, each containing 200 lb., = 2,200 to the cement ton, = 22 trade bushels. Whereas a cubic yard = 21 trade bushels, = 27 cubic feet, therefore

$$\frac{2{,}200 \text{ lb.} \times 21}{22 \times 27} = 77\tfrac{3}{4} \text{ lb. per cubic foot.}$$

Since the difference between the yard cube in bulk and the ton avoirdupois of London Custom Portland cement is so small, and a slight wastage is unavoidable, it is usual to regard them as equal.

To further obviate any misunderstanding, attention was drawn to concrete constructed with cement of special specific weight per foot cube; but if within the London area a higher weight per foot cube than the London Custom weight were employed without cause, the estimator would find himself above competitive market value.

Sack hire has been shown as a separate item of cost, and will not vary—the bulk being unchanged whatever the weight.—Yours, &c.,

THE CONTRIBUTOR OF OUR "LONDON PRICES."

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Conservatism and Mercers' Hall.

To the Editor of THE ARCHITECT.

SIR,—I am much interested in your criticisms of the Mercers' Hall in your issue of May 5, under the heading of "Mr. Stephen Leacock and Oxford."

I would rather like to know on what you base your adverse criticisms of parts of the later additions to our Hall, which, as a matter of fact, have been eulogised by the leading architects of the day.—Yours, &c.,

CHARLES WATNEY, Master.

Mercers' Hall,
Ironmonger Lane,
London, E.C. 2.

[We are surprised to hear that the buildings facing Cheapside and containing the staircase and drawing-room have been eulogised by architects of standing, though they were probably regarded as good at the time they were built.—ED.]

Architects' Benevolent Society.

The seventy-second annual report of the Council, submitted to the annual general meeting on May 10, in a review of last year's work noted with satisfaction that there has been a greater accession of subscribers than in any previous year, and that the support accorded the Society has been brought more into proportion with the number of architects practising in the United Kingdom than has been the case hitherto. This result was largely due, in the first instance, to a suggestion made by Mr. Maurice E. Webb towards the end of 1920 that a special appeal on behalf of the Society should be made to members of the Institute, the Society of Architects, and the Architectural Association, asking those who were not already contributors to the Society to become annual subscribers of a guinea. This letter of appeal, signed respectively by the Presidents of the three Societies, was sent out early in December 1920. The immediate result was excellent, and the effect of the appeal was evident during the year on which the Council reported. The total list of new subscribers, and of old subscribers who added to the amount of their subscriptions, was published in the professional Press, and showed that both the number of subscribers and the amount received in subscriptions had practically doubled. For instance, the amount received in 1921 was £1,229 7s. 9d., as against £612 13s. 6d. received in 1920.

Apart from increasing the subscription list, the appeal had also the effect of bringing in many donations, which amounted to £544 16s. 6d. In addition to these, the capital account was increased by a legacy of £500 from the late Mr. B. W. Webb, and by a legacy of £100 from Miss Raggett (the latter to be paid in five annual instalments of £20). The total amount, added to the capital account during the year was £1,064 16s. 6d. Amongst the donors were the following: Mr. A. Greville Montgomery (per Mr. John Simpson), £100; Messrs. Redpath, Brown & Co., £50; Mr. B. M. Ward, £50; Sir Aston Webb, President of the Royal Academy, £26 5s.; Mr. J. W. Simpson and Mr. Maxwell Ayrton, £21; Mr. A. Hunter Crawford, £20; Liverpool Professional Classes War Relief Council, £18; Burnley District Society of Architects, £15 15s.; Mrs. Henderson, £10 10s.; Sir Banister Fletcher, £10 10s.; Mr. J. S. Stout, £10 10s.; Mr. Graham C. Awrdry, £7; Mr. Frank Emley, South Africa, £5 5s.; Mr. W. Hilton Nash, Hon. Treasurer, £5 5s.; Northampton Association of Architects, £5 5s.; Mr. F. Pinches, £5 5s.; Mr. G. Reavell, £5 5s.; Mr. W. H. Romaine Walker, £5 5s.; Mr. Philip Tilden, £5 5s.; Mr. Wilfrid Travers, £5 5s.; the Worshipful Company of Tylers and Bricklayers, £5 5s.; York and East Yorkshire Architectural Society, £5 5s.; Mr. G. A. Johnson, £5; Warrington Slate Co., £5.

In proportion to the increase in the Society's income the Council were able to afford a larger measure of relief, the sum of £1,684 12s. 5d. having been distributed among deserving applicants and the Society's pensioners.

The Committee formed to administer the funds granted to the Architects' Benevolent Society by the Prince of Wales' Fund specially for war cases, of which Mr. H. D. Searles-Wood is Chairman, has considered twenty-seven cases during the year, and has made grants amounting to £1,111.

The Council with great regret record the death, on October 3, 1921, of Mr. Reginald St. Aubyn Roumieu, who in recent years had occupied the position of Vice-President, and whose association with the Society goes back thirty years. Mr. Ernest Newton, who died on January 25, 1922, was especially associated with the Society and the Committees of which it acted as the financial administrator during the three years of the War when he was also President of the Institute. Mr. Newton's sympathetic work in these trying years would always remain a significant tribute to his memory. The Society has also lost by death Mr. E. Dru Drury, Mr. John Honeyman, Mr. W. T. Barlow, Mr. Robert Williams, Mr. A. Floyd Trebilco, Mr. W. T. Oldrieve, Mr. J. R. Withers Mitchell, and Mr. Charles H. W. Mileham.

The question of a Home for Aged Applicants was raised during the year, and various schemes have been considered; but the Council have not yet decided upon any scheme to bring before the members.

The five senior members of the Council retire by rotation. To fill the vacancies caused by these retirements the Council nominated Messrs. Thomas E. Collcutt, Lewis Solomon, Percy B. Tubbs, Arthur Sykes, and William Grellier.

The late Secretary having, at the request of the Council of the Institute, undertaken the position of editor of the Institute Journal, felt it necessary in October to resign his position as Secretary of the Society. Miss H. E. Mann, M.A., was appointed Assistant Secretary. Mr. Dircks was thanked for his services to the Society and co-opted a member of the Council.

The report was adopted on the motion of Mr. Paul Waterhouse, President R.I.B.A., the Chairman, who said it was very pleasant to him to realise, as others had realised before him, that the Presidentship of the Institute carried with it the temporary captaincy of the amiable brotherhood called the Architects' Benevolent Society. He confessed that it was with a measure of dismay that in moving the adoption of the report he had to reveal the success which attended the efforts of his predecessors. The Society had doubled its list of annual subscribers and doubled the aggregate of their contributions. Such a condition of affairs, if full of hope, was full also of menace and warning. It looked suspiciously like a spurt, and what they were in for was a long-distance race. The strength of the Benevolent Society could, it was true, be measured in pounds, shillings, and pence, but what it wanted, if he might say anything so paradoxical, was givers even more than gifts. He would like to see printing expenses swollen by an increase of the number of pages devoted to subscribers' names. The satisfaction which came even to the smallest subscriber from realising that his trifle, or better still his munificence, was flowing along in a flood of other trifles (or munificences) was far greater than that of the non-subscriber who read that his generous neighbour had given or bequeathed a hundred or a thousand pounds. Further, even their recipients felt a warmer courage when receiving gifts when they realised that the helping hand that comes to their aid was the hand of the multitude of their brethren. Let them go on and enlarge by all possible powers of persuasion the number of those who join in this society of sympathy. A donation of twenty guineas meant more or less a guinea a year in perpetuity. The price of first-class securities is rising rapidly. If donors are out for economy, let them "do it now."

The Council for 1922-23 was elected on the motion of Mr. D. Lewis, seconded by Mr. A. E. Kingwell.

Votes of thanks were passed to Mr. W. Hilton Nash, Sir Charles Nicholson, and Mr. Paul Waterhouse.

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Royal Institute of British Architects.

The thirteenth general meeting (ordinary) of the session took place on Monday, May 15, at 9 Conduit Street, W. Mr. Paul Waterhouse, F.S.A., President, occupied the chair.

Mr. Arthur Keen, the Hon. Secretary, announced the death of Mr. Lacy William Ridge, elected Associate 1863, Fellow 1879, Resigned 1912. Mr. Ridge was for many years a member of the Board of Examiners, (Architecture), and from 1900 to 1910 Chairman of the Statutory Board of Examiners.

The decease was also announced of Mr. Arthur William Cooksey, elected Associate 1888, Fellow 1910, and Mr. Thomas Batterbury, elected Associate 1881, Fellow 1894, and resigned in 1912.

The Secretary announced that the Council acting under the terms of By-Laws 23 and 24 have suspended Mr. R. R. Gall, of Aberdeen, from Associateship of the Royal Institute for a period of twelve months.

Mr. J. Alfred Gotch, F.S.A., F.R.I.B.A., then read a paper, of which we here give an abstract, entitled

"The First Half Century of the R.I.B.A."

The Institute was not the first association of architects who banded themselves together for mutual support and instruction, but it was the most enterprising and the most enduring.

Already in the year 1806 the "London Architectural Society" had been founded, with rules of almost Draconian severity. The reason given for its inception was that "among the institutions so liberally established in this city there is not one calculated for the encouragement of architecture. The feeble protection afforded by the Royal Academy can hardly be deemed an exception." Every ordinary member was required to produce annually an architectural design never before in any way made public, under forfeiture of two guineas, and an essay, under forfeiture of half-a-guinea. The Society met once a fortnight for the purpose of discussing these productions, and anyone who was absent from two successive meetings was fined 5s. The designs and essays became the property of the Society, who published such as they thought worthy of the honour, and generously presented two copies to the author. However, it attracted a number of the leading architects of the time, including such men as Ashpitel, Billings, Elmes, and Joseph Woods. But it did not live long: probably its own qualities were its undoing.

Another society was instituted in 1831, called the "Architectural Society," of which the ultimate ambition was "to form a British School of Architecture, with the advantage of a library, museum, professorships, and periodical exhibitions." For some reason, of which there is no record, this Society did not satisfy architects of the time, for in January 1834 a meeting was held at the Freemasons' Tavern to form another society, "for the study of architecture and architectural topography." The promoters, however, could not agree upon either the objects to be aimed at or the conditions of membership, so a few of them decided to hold another meeting at another hotel, and a committee was appointed which included such names as P. F. Robinson, Kendall, Goldicutt, Fowler, Donaldson, and Noble. The business of the committee was to draw up a scheme for the formation of an institution to uphold the character and improve the attainments of architects. Their labours must have been attended with success, for at a subsequent meeting Messrs. Barry, Basevi, Decimus Burton, Cresy, J. Gwilt, Hardwick, Kay, Lee, Sir J. Rennie, Papworth, Robinson, Seward, and G. Taylor were elected as original members.

By the end of 1834 the new Society, under the style of the "Institute of British Architects," was so far constituted as to have a council and a number of ordinary members.

On January 1, 1835, another notice for an ordinary meeting was issued, and as the draft directs eighteen copies to be made it is not unreasonable to assume that that number represented the membership at the time. On January 30 a summons was issued for a council meeting to be held on February 3 in order to consider the desirability of "taking the adjoining room," and as to the election of a president. This notice is signed by Thos. L. Donaldson and John Goldicutt as honorary secretaries. The headquarters of the infant institute were then at 43 King Street, Covent Garden—in other words, at Evans's Hotel, wherein was situated that Cave of Harmony to which Clive Newcome was taken by his father under the guiding hand of Thackeray. The election of a president resulted in that office being filled by Earl de Grey, whose influence did much to raise the new Society from comparative obscurity to the position of being the leading body of architects in the kingdom, and, eventually, in the Empire.

It is clear that the year 1834 saw the inception of the Institute and its definite beginning, but it took nearly a twelvemonth to become fully equipped, and a notice to its members, signed by Donaldson and Goldicutt, marks its first meeting as a fully constituted body. They intimate on June 3, 1835, that "The opening meeting of the Institution will be held on Monday the 15th inst., at 8 o'clock in the evening. The council have transmitted invitations to the President and principal members of the Antiquarian, Dilletanti, Civil Engineers, Geological, Asiatic, Royal, and Architectural Societies, and also of the Royal Academy. Your attendance is particularly requested on this occasion, and a ticket is enclosed for your visitor. A copy of the laws is also sent herewith for yourself, and one for your friend, should you deem it desirable to furnish him with it." The notice proceeds to ask for cordial co-operation, and for the titles and scope of any papers which members might have in preparation or contemplation.

At this meeting Earl de Grey stated the objects of the new Institution, and pointed out the advantages which Architecture, as a national art, would derive from its foundation.

The President's opening remarks were followed by an address by the senior secretary, Mr. Donaldson. He announced that already eighty members had been enrolled, that communication had been established with several foreign Academies, and that the nucleus of an excellent Library had been formed. He proceeded to express a hope that prizes would be offered to young architects for original designs and measured drawings of old buildings, and that facilities would be afforded to students for foreign travel. He also mentioned the opportunities which would be given at the ordinary meetings of the Institute for discussing matter of scientific and antiquarian interest. In fact, he foreshadowed at that opening meeting many of the principal objects which the Institute has made its own.

Unfortunately there were no Transactions published in those early years of the Institute, nor were there any architectural journals in existence, and so the valuable contributions are not available for reference.

Hitherto the notices of meetings had either been written or lithographed, but on May 3, 1836, they assumed the dignity of print, and the circular of that date announces that at the annual general meeting on Monday last the officers elected were:—President, Earl de Grey; Vice-Presidents, Charles Barry, John B. Papworth and P. F. Robinson; Secretaries; T. L. Donaldson and Charles Fowler; together with seven members of Council.

The Institute was now well established. The first volume of its "Transactions" was published in this year, the cover adorned with its well-known device or seal, the design of which has since been modified. It proceeded in November of the same year, 1836, to secure its status still further by applying for a Charter of Incorporation. On the 7th of that month the necessary resolution was passed at a special general meeting, and with almost incredible speed its terms were formulated, by-laws were drawn up, and on February 6 following His Majesty's

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Charter was laid on the table, the date of its grant being January 11.

The Institute of British Architects was now an important and well recognised body, although it was not yet "Royal." The young Queen became its Patroness; its President was Earl de Grey, "an amateur of considerable cultivation and artistic taste," and a person of great influence in high quarters; most important of all, it included in its memberships nearly all the leading architects of the time with the exception of the Royal Academicians. According to the Report of the Council read on May 22, 1836, very severe reflections had been cast upon the architects of the time, and in order to counteract these and to advance the Art of Architecture, towards which it is implied that the Royal Academy was somewhat indifferent, the Institute had "burst into existence," a phrase conveying a sense of its rapid inception and assured success.

This Report is the first of the series which has been continued yearly ever since. Among other things it asserts that some years since a report of the House of Commons expressed in strong terms an opinion that no architect in this country could be found capable of carrying a great work into effect. In refutation of this injurious charge the Report adduces the fact that ninety-five designs had recently been submitted in the important competition for the new Houses of Parliament, designs which exhibited the talent of the day in a most favourable point of view. It congratulates the Institute upon the gaining of prizes by two of its members, Messrs. Barry and Railton, the former of whom has been selected as the successful candidate and his design adopted by the Legislature.

A wish is expressed that models might be made of the designs then being exhibited for the new Houses of Parliament, and that the Institute might look forward to possessing a museum "enriched with representations of the most celebrated buildings of ancient Greece and Rome with those of our own country made to the same scale." This aspiration, attractive as it is, has not been fulfilled.

Attention is called to the collection of building stones then being formed and its value in connection with the lectures on geology which the Council had established. Then comes a reference to the portraits which adorned the walls, and a wish is expressed that they might be the commencement of a series—a wish that has happily been gratified, for the Institute's collection of portraits is probably unrivalled in any society of the kind. It is also announced that a medal is to be designed by Mr. Benjamin Wyon, intended as a prize medal to be given annually, whereas the Soane medal was to be given occasionally.

The most important event during the next year, 1837 (apart from the Charter), was the transfer of the Institute to better rooms, an indication of its growth. The noble president, accompanied by the council, inspected several suites, and eventually that at 16 Lower Grosvenor Street, near Grosvenor Square, was taken; and there the headquarters remained for twenty-two years, until the removal to the present premises was made in 1859. It is not without interest to learn that a lecture on "Dry Rot" was given in the spring, and that during the summer a Register of Assistants seeking engagements was started.

During the following year, 1838, two matters engaged the attention of the Institute which are calculated to stir some hearts even at this distance of time. One was the proposed fusion of the old Architectural Society with the Institute, the other was the consideration of "the present defective practice of competitions." The question of fusion seems to have been beset with the difficulties we know so well by experience. It roused a spirit very inimical to the "living peaceably in their habitations" of those concerned; and it serves to remind us of those qualities of wisdom and forbearance which are still necessary if the long-desired unity of the profession is to be achieved.

One of the outstanding events of this early period was a visit, in the year 1843, of its patron the Prince Consort, or Prince Albert as he was then styled, to a meeting of the Institute. It was on April 3, and the occasion was the distribution of prizes.

The interest of Royalty in the affairs of the Institute was awakened again three years later, no doubt through the good offices of Earl de Grey, and on April 27, 1846, the gift of a Royal Gold Medal was announced. The medal was intended as an encouragement to young architects by a competition in design, and the subject set for the first competition, which was held in 1847, was the very suitable and practical one of premises for the Institute itself. Eleven designs were submitted, but they missed the mark so entirely, they were, most of them, so grandiose and expensive—in short, they so widely disregarded the conditions imposed that the medal was not awarded.

This fiasco sealed the fate of the junior members of the profession in regard to the Medal, and it was decided to award it in future not to the immature work of the young, but in recognition of the actual achievements of the older men. The Royal donor agreed to the change, and, accordingly, in the following year, 1848, the first recipient of the Royal Gold Medal was Charles Robert Cockerell.

The year of the Great Exhibition saw the establishment of that beneficent institution the Architects' Benevolent Society, which has done so much to relieve the hard lot of necessitous architects.

Then came in 1855 the first stirring of the waters in relation to one of the most important activities of the Institute, for on December 3, in the course of a discussion on a Diploma in Architecture, a memorial was read from the Architectural Association asking for the establishment of an examination. The subject was considered by the Council from time to time, and five years elapsed before, on June 25, 1860, a resolution was passed in favour of affording an opportunity of a voluntary professional examination. In May 1862 regulations for the voluntary architectural examination were printed and issued. For twenty years the system of voluntary examinations was pursued with varying success. Sometimes the number of candidates was a subject of congratulation, at others it was so small that no examination was held. The twelfth and last was held in June 1881, and on March 28, 1882, the first compulsory examination of candidates for the Associateship took place, and was "attended with unlooked-for success." This definite landmark in the history of the Institute was established two years within the limit of the first half century.

The policy of the Institute, founded on its early experience of the failure of such lectures as it had promoted, as well as of "a school of art, accessorial to architecture"—an event hardly to be deplored in so far as the interests of euphony are concerned—its policy was definitely opposed to its becoming an instrument for teaching young architects. It was content in directing their studies, in aiding them with its ever-increasing library, and in exciting their emulation by the offer of prizes and medals. From this policy it has not swerved, and in view of the still wider fields of administration which present conditions require it to cover, it is not likely to swerve.

The voluntary examination of its own members was not the first experience of the Institute in that direction, for already, in 1856, it had been appointed, under the Metropolitan Building Act, the examining body for the district surveyors established by that Act. This consummation was achieved largely through the influence of Sir William Tite, M.P., and the Institute still continues to exercise the powers then conferred.

In the year 1859 occurred the first noteworthy break in the personality of our founders, in the death of Earl de Grey, who had been President since the founding of the Institute five-and-twenty years before. Through his instrumentality it was that the Institute achieved almost

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at once its high position among societies of the like kind. To his good offices one may also attribute the early granting of the charter.

Under by-law 23 of the first issue the President could only hold office for two years in succession, but the by-law had been periodically suspended in order to retain the presence of Earl de Grey, and since his death it has, with one or two exceptions, been acted upon ever since. Moreover, Earl de Grey's successors in the chair have, with the exception of Mr. Beresford Hope, all been practising architects, men who have made a mark more or less legible in their profession considered apart from their activities within the Institute.

The one exception to the rule of electing architects to the Chair, Mr. Beresford Hope, left his mark upon the Institute, for it was during his term of office, and in consequence of his influence, that the epithet "Royal" was added to our title, and since the year 1866 we have been known as the *Royal* Institute of British Architects.

It was in that same year that another significant change was made, that of appointing a paid secretary. Hitherto the work had been done by two honorary secretaries, while a third devoted his attention to foreign correspondence. But owing to the increase of membership, and the ever-widening field of the Institute's influence, the work became too onerous. An assistant secretary was therefore appointed with a salary, the two honorary secretaries being retained, one for foreign correspondence and one for home duties. This arrangement was gradually modified, and eventually the position became what it is to-day, with a paid secretary to run the administrative machine and an honorary secretary to do the work usually allotted to those distinguished gentlemen.

This is the last of the important constitutional changes which occurred during the first half-century of our existence. The close of that period found the Institute following much the same path as it had hitherto trodden. It was at once a learned society and one to further the interests of architects and, through them, those of architecture. It represented, as the Report for 1872 said, the interests of architecture both as a profession and an art. But its tendencies were rather oligarchical. Associates had no vote. Its active members were all London men. Its policy was against the affiliation of societies in the provinces, although it was prepared to bestow a benevolent interest upon them.

On one occasion, in 1859, the Institute, leaving the fields of art and learning, ventured into those of politics, and presented a petition to Parliament praying that the elective franchise might be conferred on its members as a simple act of justice, seeing that the Government had in view the bestowing of it upon other learned bodies. But learning, as such, save that resident in Universities, has not been held a sufficient qualification for the vote.

Passing for a moment from the Institute as a whole to some of its individual members, we may well come back to those "rich men furnished with ability" who gave to its funds. Some of them presented shares in the Architectural Union Company; their names are recorded, but not emblazoned. The memory of others is preserved in the prizes instituted by their generosity or in remembrance of them. In 1863 a fund of £1,000 was collected as a memorial to Augustus Welby Pugin, and a travelling studentship was founded as the result. Nearly fifty years ago, in 1873, the annual report mentions that "the Pugin Studentship was awarded to Mr. Aston Webb, his drawings being perhaps the most elaborate and carefully finished set that had ever been sent in since the Studentship was founded."

In the same year, 1873, died Sir William Tite, M.P., who had been twice President and had taken for many years an active part in the life of the Institute, and who had rendered it noteworthy help in his capacity as Member of Parliament. He bequeathed £1,000, which was devoted to the foundation of the prize which still bears his name. The Godwin Bursary, the Owen Jones Studentship, and the Grissell Gold Medal are the other prizes which were founded during the first half-century of our existence—not a bad record, considering the modest fortunes (if any) which the pursuit of architecture produces.

The Institute library is recognised as the finest collection of architectural books, manuscripts, and drawings which the world possesses. However much we may differ as to the aims, objects, and policy of the Institute, or as to the efficiency with which they have been carried out, we can all agree that the library alone would justify its inception and its existence.

Mr. Gotch then concluded as follows:—

"Enough has been said to show the ability of those who founded the Institute and fostered it and entered into the fulness of its success. They have left us a noble heritage; a heritage of practical knowledge; of deep learning and of high endeavour. It is a heritage we must not waste, nor shall we. Rather will it urge us to increase it, and by facing modern conditions in a modern spirit leave to our children more than we received from our fathers. Yet, while we grapple with problems of great practical interest, let us not forget the traditions which cling to us—traditions of learning; of high-mindedness; of gentle manners. So shall we worthily emulate those famous men, our founders, leaders of the people, wise and eloquent in their instructions."

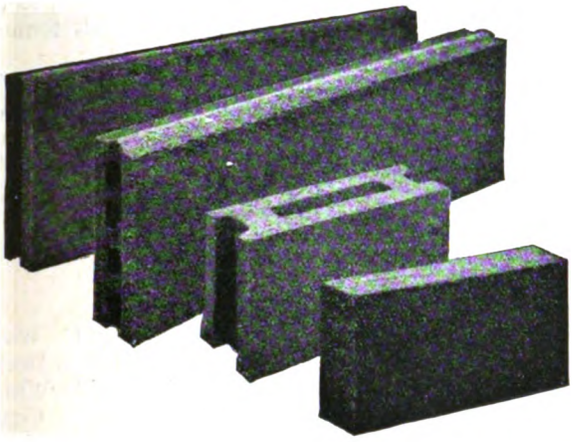
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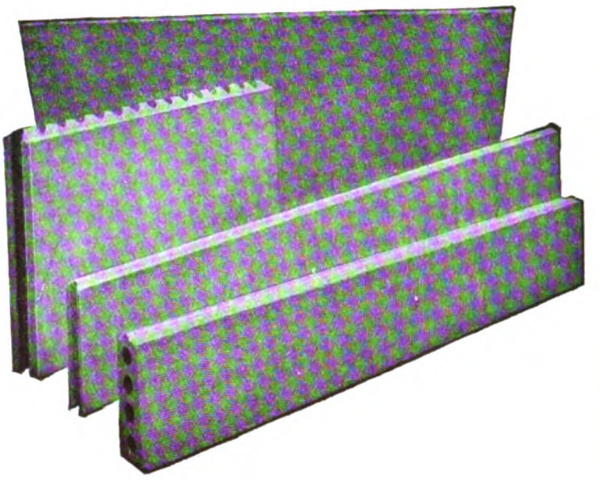
Mr. W. B. Worthington, President of the Institution of Civil Engineers, in moving a vote of thanks to Mr. Gotch, said it was a most interesting paper, which, to himself at any rate, included a great deal that was new. The opening meeting of the Institute was, he noted, held in 1835, that is about fifteen years after that of the Institution of Civil Engineers. The fact that the President of the latter body had been invited in 1835 to attend the meeting indicated the pleasant relations between the two great professional bodies—relations which, he hoped, had been continuous to the present day. Recently he himself had been collaborating with the President of the Royal Institute of British Architects in connection with competitive drawings sent in by young engineers for a prize given by the late Mr. Hawksley for the purpose of seeing if engineers could not keep their designs for buildings in connection with engineering schemes within a reasonable distance of being inoffensive to architects. Mr. Hawksley's own work was remarkable for the excellence of the buildings he put up in connection with waterworks in many parts of the country.

Mr. John Slater, who seconded the vote of thanks, remarked that Mr. Gotch was right in saying that the changes which occurred in the first fifty years of the R.I.B.A. were not so great as those which have happened since. No institution could hope to preserve its vitality unless it moved with the times. Sometimes he wondered what those early men would think if they could come back now and see how far-flung were the present activities of the Institute. They might be glad to see the progress made but they might also thank their stars that their lot was cast in less exacting times. Probably he (Mr. Slater) was the only one remaining of those who had taken an active part in the Institute during its first fifty years. He never went upstairs to the present Library without feeling regret that meetings were no longer held there. Those upstair rooms were peopled with ghosts. He remembered Professor Donaldson and seeing Sir William Tite in the chair. In 1879 he was a fairly frequent attendant at the meetings. In 1880 there was a crowded audience for a paper on "Sanitary Science and its relation to Architecture," all the sanitary experts were present, and the subsequent discussion was so keen they had to adjourn the meeting. The year 1881 was memorable for himself because he then read his first paper, on electric lighting, before the Institute and gave the first demonstration with Swan lamps. In that year Geo. Edmund Street and Sir Horace Jones contested for the presidency. Street was elected by a majority of two.

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but died within a few months. It must be a source of regret that the Institute possessed no portrait of the most famous of the Victorian architects. After Sir Horace Jones, a typical official architect, came Ewan Christian with his extraordinarily punctilious ideas. He was followed by Edward I'Anson. Apart from the presidents there were many ordinary members of whom he retained vivid recollections—men such as William Burges, Professor Kerr, Thomas Henry Wyatt, Arthur Cates and R. Phené Spiers. In such old members the Institute possessed a goodly heritage. The future lay in the young men's hands to make or mar. There must inevitably be differences of opinion; but he hoped they would remember that the Institute was greater than its parts. It looked as if at last they might now be approaching a safe haven. He trusted that in the early future it might be said of the members that none were for party but all for the State. The Royal Institute of British Architects had a past full of high ideals, lofty aspirations and noble traditions. All would hope its future might be one of increasing usefulness. He would say in conclusion "Floreat domus et esto perpetua."

Mr. William Woodward said that Mr. John Slater could go back only a very little time before his own experiences. Mr. Slater became an Associate in 1879; Mr. Thomas Collcutt was elected a Fellow in 1879; Mr. Atkin-Berry and himself (Mr. Woodward) became Associates in 1879. Whether they had a prophetic idea that very soon after 1879 there would be a compulsory entrance examination, he did not know. In those early days the Associates possessed no vote. Like Mr. Slater, he would like the sessional meetings to go back to the room upstairs. He had seen and heard every President of the Institute since Sir William Tite in 1870 down to Mr. Paul Waterhouse. They all must hope that the Institute fifty years hence would be able to give to them the encomiums that Mr. Gotch had given to the Institute of fifty years ago.

Mr. Maurice B. Adams also contributed to the discussion and pleaded for an up-to-date catalogue of the Library.

The vote of thanks was then carried by acclamation.

New Books.

"Farm Buildings and Building Construction in South Africa." By W. S. H. Cleghorne, B.Sc. (Edin.), &c. (London: Longmans, Green and Co. 2nd Edition: £1 5s.)

The author's hope, that the second edition will be favourably received, no less so, than the first edition of such a monumental treatise upon the subject of South African farm-building, should certainly be realised; for seldom has a work come under our notice so entirely satisfactory as the present one. In a series of thirty chapters Mr. Cleghorne develops his subject with a clarity of vision and a directness of expression truly admirable. The numerous diagrams and illustrations, too, if not always equal in value to the text, at least serve their purpose of helping to elucidate the letterpress.

The author does well in pointing out the advisability of forming the flues small, the old style being very hard to kill; as he says, 10 inches square is adequate as a maximum. Of course, when the chimney-boy was a feature of industrial life, the larger flues were a necessity.

In many respects the text is applicable to South Africa specifically, but we at home in the old country can benefit by much that is contained within the covers of this excellent book.

"Building Materials." By A. P. Laurie, M.A., D.Sc., &c. (Edinburgh and London: Oliver & Boyd. 6s. net.)

Good as this book is, it may well be doubted whether it will, in fact, appeal largely to the young builder and architect, for whom it is ostensibly written. But if that purpose be set aside, then it can be agreed that there is a large amount of interesting and informative matter worthy of consideration.

The nine chapters deal variously with stone, lime and cement and plaster, concrete, bricks, terracotta, pisé-de-terre, asbestos, metals, timber, and surfacing materials.

Upon what basis does Dr. Laurie regard the cube as the "simplest possible geometric design"? I doubt if many would agree with this opinion. It is satisfactory to see the author drawing attention to the weakness inherent in plaster slabs where reeds form an integral feature.

Here and there will be found some extremely useful tit-bits of information for younger and older architects and builders; but for a book purporting to be introductory it is at once not sufficiently and over-sufficiently informative. And it is to be regretted that there are so many grammatical slips to be found. The diagrams and tables are useful features.

Percy C. Webb, Ltd.

In about four weeks' time Messrs. Percy C. Webb, Limited, the marble merchants, of St. Katharine Docks, London, will move to new premises at the Marble Wharf, Verney Road, Old Kent Road, on the Surrey Canal. The wharf covers an area of nearly an acre, with a frontage of about eighty feet to the Canal. It has a substantial building about 181 feet long by 62 feet wide. This was burnt down some few months ago, and is now being reinstated.

The move is made necessary by the steady growth of the business, both in rough and manufactured marble. With the increased facilities and accommodation available at Verney Road the firm should go still further ahead.

Work is now proceeding apace on the office and works' buildings. The plans allow for a fine showroom for the monumental side of the business, extensive masons and polishing shops with the latest electrical machinery, well-lit drawing and general offices, and also a comfortable consulting room for clients.

The plant from the present premises, both at Dalston and the Docks, will be moved, and further saws, polishing machines, and cranes installed.

The welfare of the staff will not be overlooked: a large mess-room is to be provided for the workmen, while a rest-room and library is allocated for the use of the office folk.

When all is settled, Messrs. Percy C. Webb, Limited, will have one of the finest marble yards in London.

Surveyors' Institution and Town Planning.

The Committee which was set up by the Council to consider the possible effect of Section 46 of the Housing, Town Planning, &c., Act, 1919, on the development of building land, and which included representatives of the Land Agents' Society, have now completed their report. They draw attention to the very large area of land which must necessarily, under the above-mentioned section, be included in town-planning schemes within the next three years, and express apprehension lest the time required for the preparation of schemes and for securing approval thereto may result in the sterilisation of a considerable proportion thereof over a lengthy period. The reduction in the cost of building is already having its effect, and inquiries as to land for early development are being received by surveyors in many parts of the kingdom. The Committee urge that it is of the utmost importance in the interests of the public that no check should now be placed upon a movement which will reduce unemployment and relieve the existing shortage of house accommodation.

They make several suggestions for expediting the passage of town-planning schemes and preventing the holding up of development. These have now been approved by the Council and submitted to the Minister of Health.

An agreement has been signed by Messrs. W. Booker, late of the Hammersmith Palais de Danse, and C. Hobson, the manager of Ciro's, whereby they agree to lease for a period of ninety-nine years Messrs. Crosse & Blackwell's premises in Charing Cross Road, W. It is their intention to erect a dancing-hall, which will be the largest in the world.

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The true test of any facing material's durability is its resistance to severe and sudden atmospheric changes of temperature. The fact that terra cotta is almost indestructible is proved by the fact that bricks and tablets have been discovered among Assyrian and ancient Babylonian ruins in almost perfect condition.

Terra cotta conveys to the public that evidence of prosperity and worth which successful firms always consider both wise and politic.

Our English manufacturing cities and towns, especially in the north, are almost destitute of the charm of colour. Referring to London prior to the advent of terra cotta buildings, an able writer stated: "The smoky atmosphere has done its best to clothe our most costly facades in a thin drapery of soot, and has accelerated the work of natural decay. They soon become dark and sombre masses, their architectural beauty and details become less and less distinguished, and people pass them with but scant acknowledgment of their architectural pretensions."

Housing News.

The tender of Messrs. Rogers and Davies for the erection at Ely of forty parlour-type houses at £427 each has been accepted by the Cardiff City Council.

At Gelligaer Council recently tenders were considered for the erection of forty-two houses on the Hoelddu site, Bargoed. The tender of the National Building Guild at £19,894 for the whole forty-two houses—an average of £473 13s. 4d. per house—was accepted. It was stated that thirty-eight houses of the B type would be built at £479 per house, and four houses of A type at about £423 per house.

At the last meeting of the Newcastle Corporation Housing Committee it was stated that the Ministry of Health refused to sanction the erection of any more state-aided houses at present. It was agreed to obtain five acres of land near the Naval Hostel at Walker, on which to erect block dwellings. About 300 houses, similar to those of the Sutton Trustees in Barrack Road, can be erected on the land. The Committee are considering the question of building a street of improved flats at Walker. Plans have been prepared.

At the monthly meeting of the County Council at Durham the Deputy County Medical Officer said in Durham County up to the present, out of 46,000 houses—the minimum requirement of the county—only 7,500 had been completed or were in course of construction. In view of the urgency of the matter and the marked reduction in the cost of building, which, according to a recent statement of the Minister of Health, was now down to £400 per house, he suggested that steps be taken to secure a relaxation of the restriction on building, and that Durham County be allowed to proceed with their housing scheme.

Dundee Town Council recently exposed to public roup and sale in feu the remainder of the ground at Balgay housing scheme, extending to approximately 20 acres, at the upset price of 2s. per pole. The ground was offered in six lots, and only lot 2, extending to 514.1 poles, was sold, the purchaser being Mr. Charles G. Soutar, of Maclaren, Sons & Soutar, architects, Dundee, who was acting on behalf of a client. The purchase was made at the upset price. No feu-duty is payable for five years, and the successful offerer will be obliged to erect on the lot within the next five years twenty-five houses of six rooms (including kitchen and scullery) and bathroom

General.

Messrs. A. R. Gradwell & Sons, of Blackburn, are the architects for a picture-theatre to be erected very shortly at Oswaldtwistle.

Honiton Town Council has decided to ask Messrs. W. H. Radford & Son, of Nottingham, to advise on their proposed sewerage and sewage disposal scheme.

The Royal Institute of British Architects has received from the Royal Academy of Belgium an example of the bronze medal struck on the occasion of the hundredth anniversary of the foundation of the latter body.

The directors of the Manchester City Football Club have purchased a site of 16¼ acres in Rusholme as a new ground, with total accommodation for 120,000 spectators. A grandstand for 15,000 people is part of the works shortly to be undertaken.

Messrs. Parkes Lees, L.S.A., & Roseveare have now completed arrangements for taking over the practice and offices of the late Messrs. Wise & Wise, architects and surveyors, of Launceston, Cornwall, recently closed owing to the death of Mr. Ernest Wise, M.S.A.

Berwick Town Council are to acquire a piece of land in Tweedmouth to erect workmen's houses of the two- and three-room type, preparatory to proceeding with the reconstruction of the dilapidated and congested area of the borough.

Messrs. Pite, Son & Fairweather, architects, have prepared plans for an extension of the Victoria Cottage Hospital, Woking, at a cost of £18,500. Towards that sum £2,500 has been collected, and a public appeal is about to be made for the balance.

The King has been pleased by warrant under His Majesty's Royal Sign Manual, bearing date the 6th inst., to direct Letters Patent to be passed under the Seal appointed to be kept and made use of in place of the Great Seal of Scotland, granting a Charter of Incorporation to "The Incorporation of Architects in Scotland."

The Devon and Exeter Architectural Society held their annual meeting at Plymouth on the 11th inst., Mr. A. G. Bewes, A.R.I.B.A., President, in the chair. The following officers were elected for the ensuing year: Mr. Percy Morris (Fellow), President; Messrs. J. Crocker (Fellow) and J. L. Fouracre (Associate) Vice-Presidents; Messrs. B. P. Shires (Fellow), C. R. Corfield (Associate), Allan Pinn (Associate), R. A. Mill, J. Bennett (Licentiate), F. Jerman, and B. H. Palmer (Licentiate), Council; S. Dobell, Hon. Treasurer; A. R. Holman (Associate), Hon. Secretary.

A letter was read at the last meeting of the Cardiff Technical Instruction Committee from the South Wales Institute of Architects offering to loan the whole of the books of the Institute's library (value approximately £150 to £200) to the School of Architecture on certain conditions. It was decided to accept the offer with thanks. In connection with the Royal Institute of British Architects' conference to be held at Cardiff, June 8 to 10, it was reported that a joint design by Cyril Bates and Colin Jones, students in the department of architecture and civic design, had won the open competition for a design for the programme cover. Both competitors were members of the evening atelier.

The County Memorial Chapel in Ely Cathedral to those men of Cambridgeshire and the Isle of Ely who fell in the war was unveiled on the 10th inst. The chapel (which was illustrated in THE ARCHITECT of July 15, 1921) was formerly a vestry, and stands on the east side of the north transept. The 6,000 names of the fallen appear on four large hinged panels or shutters on either side of the chapel. The memorial includes a reredos, altar, screen, a wrought-iron candelabrum, and a stained-glass east window. The whole of the work has been carried out by Messrs. Rattee & Kett, of Cambridge, to the designs of the architect, Mr. E. Guy Dawber, F.S.A., F.R.I.B.A., of 18 Maddox Street, W. 1.

The Minister of Health stated in the House of Commons last week that a large number of contracts for bricks and other materials have been cancelled, and compensation amounting approximately to £220,000 has been paid, or been agreed to be paid, in respect of outstanding commitments under the contracts. So far as materials already manufactured and purchased are concerned, the Department has either arranged with the manufacturers to re-purchase them at a valuation, or, if this has not for any reason been possible, has handed them over for sale to the Disposal and Liquidation Commission in accordance with the general arrangements for the disposal of surplus Government property.

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Architectural Humours.

THOUGH the architect may become inured to disappointment and frequently feels himself to be a persecuted individual, he should find a more or less qualified amusement in the experiences which are the lot of all those connected with the craft of building, and should afford him some compensation for his troubles. He of all men has to be a master of compromise, for in every one of his commissions compromise of some kind is a necessary element. He has to deal gently with the little knowledge of others, which is truly a dangerous thing to themselves, and creates many a difficulty for him. He is in the position of a schoolmaster dealing with a pupil who can leave a school if he is not satisfied with his personal treatment by his master. He may be fitted for the lowest class, but the architect is lost who brings home to his client the abysmal depths of his ignorance. Probably the safest method for the architect is to assume the superior education of his client, for this flatters him, and he may allow himself for pride's sake to accept decisions he neither understands or likes. The client who has an utterly erroneous idea of building-values must be humoured, for the man who is bluntly told that what he imagines he can get for £2,000 will cost £8,000 will either not build at all or will seek other guidance. The way to truth must be taken, but the client must not be led round a right-angled turning, but by a devious and wandering way. The average client believes that the contractor, though a cunning rogue, can be outwitted, and that the chief value of an architect is that he can control him, and somehow or other use the contractor's funds in the same manner that the average socialist expects to use the bottomless purse of the State. This childlike conception of an architect's functions frequently leads to disallusionment and trouble, for the client finds it hard to realise that a contractor has to pay hard cash for materials and meet weekly bills for labour. The Building Guilds are not without guile when they say they do not work for profit, but avoid the phrase by allocating money for other nominal uses, for the word profit is like a red rag to a bull. We have often thought it a pity that the whole population of the land cannot have a year's training in a carpenter's shop, for they would then at last realise that even building work takes time and requires effort. The lofty altruism which demands that all men should be well paid, but that what we want ourselves should be provided at starvation prices, was never so rife as it is to-day.

The woman's point of view has always to be considered in building a house, for no sane man determines on the venture unless he is urged thereto by his wife. The brave fellow may appear to the simple-minded architect as a principal, but in reality he only occupies the position of an ambassador or agent. He may speak, but it is the power behind which dictates the words used. The wise architect, while treating the husband with nominal respect, should endeavour to get into personal touch with the real autocrat, for in the case of the house it is woman who dictates, and who must be obeyed. It is, therefore, well for the architect to say little before he has bent his knee before the seat of real authority, and the little he says should be non-committal. If the architect has foolishly committed himself to positive expressions of opinion the best way is to say he has been misunderstood, for his client's wife will always be ready to say "I find you totally misunderstood Mr. A., who quite shares my views." In "Silas Lapham" the wife of the rich millionaire discovers that her architect knows better what she wants in a kitchen than she does herself, and as the architect described in a picture of Charles McKim, we may recognise the extent of the diplomacy of the great American architect. But such triumphs are few and far between, and if the average woman admits that she has got what she wants in a kitchen she will tell you it is because she insisted on it, and told the architect how to do it. The difficulties of the architect have undoubtedly been greatly increased by the efforts of the "Daily Mail," for that enterprising journal has almost persuaded woman that an architect should with care and contrivance be able to plan a house which cleans itself, and in which the best French cookery can be produced by turning down a switch. This is a woman's desideratum, and one which the architect has to strive after. We do not regard our schedule of fees as complete for a further and higher scale should be laid down for readers of the "Daily Mail," who are perfectly certain to expect more and better results from the architect than others do. Cupboards are a trite and hackneyed subject, and we will only allude to them *en passant*. If cupboards cost nothing there would still be a little difficulty—that of providing them without diminishing the areas of the rooms in which they are placed. We must hope that the enterprising and ambitious ladies who are now taking up architecture as a profession will solve this little difficulty, which is wholly beyond the average duller wit of the male architect. We know a lady who asked an architect who was building for himself if he was incorporating all the "modern improvements" in his house. He weakly hesitated before answering that he did not think he had quite managed to work in everything. "But, of course," she said, "you have avoided wooden ledges everywhere, which require so much dusting." The architect left a bad impression for being unimaginative; he said he remembered no such ledges other than window-boards, the existence of which he had to admit. We admit to finding it very difficult to know what the average woman trained on a course of the "Daily Mail" and frequent Building Exhibitions does want, but we imagine it to be a clever combination of the advantages of an operating theatre and of a mediæval cottage, something which will automatically spurn dust and yet have the mellow softness given by centuries. This should be situated in some charming situation with southern aspects on all sides excepting in the height of a hot summer, when by a little ingenuity the aspects should be made reversible.

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It will readily be seen that we are not among those who regard an architect's occupation as being a commonplace or easy one. It seems to us as being a calling of adventure, not perilous to life and limb, but as endlessly stimulating to the imagination as that of the pirate of the Spanish Main or a master criminal. A lawyer can plead that statutes have made certain things impossible, a doctor can state that Nature and the human body set limits to his skill, but an architect in the employ of an enterprising client has to skirt the snowy peaks of the impossible along circuitous roads. The man may fail to perform the feats expected of him, but what continually strange and changing vistas of character are not brought to his notice in the course of his daily life and experience! In the past we have led sheltered lives like those of women a century ago, we built indifferently badly in the old Victorian epoch, and what we did was taken with little comment or interest. Now our seclusion is stripped from us by the Press, and amateurs point out our defects, and we need to tread warily lest we are banished from the face of the earth by the evolution of more skilful craftsmen—persumably women—whose achievements will show us the depth and extent of our failure.

Illustrations.

NEW HEAD OFFICE, LONDON ASSURANCE, KING WILLIAM STREET, LONDON, E.C.
CAMPBELL JONES, SON, AND SMITHERS, Architects.

LOGGIA AT BEVERIDGE PARK, DORSET. E. GUY DAWBER, Architect.

THE WHITE STAR S.S. "MAJESTIC," *vice* "BISMARCK."

Notes and Comments.

Building By-laws and Restrictions.

The National Federation of House Builders have sent a deputation to the Ministry of Health, who rule that where plans and specifications involving a departure from the by-laws have been approved as part of a housing scheme, these modifications can be taken advantage of in any future work done by a private individual who is carrying out a private building scheme. In other districts, where no application has yet been made a local authority may accept any scheme which falls within the regulations made by the Local Government Board, and if the local authority shall refuse its sanction to any such scheme an appeal may be made to the Ministry of Health, whose decision shall be final in respect to such scheme, but the appellant may be required to deposit a sum not exceeding £10 for the expense of such inquiry. This in effect means that anyone can in a matter of housing claim and obtain the benefit of all ameliatory clauses which have been sanctioned in connection with housing schemes generally, and though the provisions with regard to areas not already planned is of three years' duration only, we should probably be right in assuming it will be continued indefinitely.

The Restriction of Rents.

Emergency legislation is often dangerous, and no stronger example can be given than the agitation which is openly supported by a large section of the Press to continue the duration of the Rent Restriction Act. During the War this Act was passed to provide for the great crowds of applicants who had to dwell within certain areas in order to do war work. Even then, why the Government which was spending millions in war expenses of every kind should not have coupled compensation to the owners of property, the rents of which were to be restricted, we do not know, but the fact that a class of private individuals were so penalised has evidently made people oblivious of the immoral nature of the whole transaction, which is precisely of the same nature as an ordinance compulsorily compelling shopkeepers to part with their goods under market values. The Rent Restriction Act is in fact the culminating height of a policy of injustice which was inaugurated by the Increment Duties of 1909, and like them must be repealed if people in this country are ever to get accommodation on reasonable terms. Acts of this nature, evil and mischievous as they are in themselves, are productive of even greater evils, for they tend to lower the moral sense of the whole community, and to bring about the very evil they are intended to remove.

Using a White Elephant.

Sir Martin Conway gives in a very clear and readable letter reasons for transferring the War Museum to the Imperial Institute. The War Museum has hitherto been housed in the Crystal Palace, but its lease will shortly come to an end. The building is unsuited for the display of pictures and models, while it costs £25,000 a year. The Science Museum is about to vacate some galleries in the Imperial Institute building, which can be used for the exhibition of part of the War Museum collections. If to these galleries are added portions of adjacent galleries now occupied by the Imperial Institute, and if a connecting gallery is erected at small expense, the War Museum, intensely compressed, can just be crowded in. The question has been carefully considered by two Government committees. It received the approval of the Geddes Committee. It receives the approval of everybody acquainted with the circumstances except the Imperial Institute. That body was extricated from bankruptcy ten years ago by the Government at great cost. Its present income is made up as follows:—

It receives a Government contribution of £10,000, a further contribution in lieu of rates of £5,000, and the cost of the maintenance of the buildings, which amounts to about £10,000 a year. The contributions of the Dominions are as follows:—Canada, £4,800; Australia, £2,000; New Zealand, £1,000; South Africa, £250; Newfoundland, £200. The Crown Colonies contribute £21,216, and I may remark in passing that the Falkland Islands pay twice as much as South Africa, the Straits Settlements more than Canada, and Sierra Leone as much as New Zealand.

Sir Martin points out that the Indian Government has given notice that it will no longer contribute to the cost of maintaining the Imperial Institute. Egypt has ceased to be a British dependency, and the Imperial Institute—always an unfortunate undertaking—is visited by few, while the War Museum attracts many visitors. We think the suggestion is an admirable one as it eliminates the necessity for building, while the attractions of the War Museum may well cease to exist after a period of twenty to thirty years has passed.

The Council of the Society of Architects has allocated three premiums of ten guineas each to be at the disposal of the Art and Literature Committee under certain conditions during any one year in remunerating any writers commissioned by the Council to prepare articles on subjects of professional interest for the use of the Society.

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London Art Galleries.

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The exhibition opened last week of the work of Whistler's pupils, Walter and H. Greaves, at the Goupil Gallery has as its main feature the series of large water-colour "Views of Old Chelsea," signed by the two brothers, H. and W. Greaves, which give us a singularly faithful rendering of the Thames riverside at Chelsea and Hammersmith in the sixties and seventies of last century. In this year's Royal Academy many visitors will have noticed in the vestibule on entering, Walter Greave's remarkable painting of "Hammersmith Bridge on Boat Race Day," which shows that artist as a strongly original personality in art, quite apart from Whistler's influence; and this impression is strengthened by these Chelsea drawings, which are almost monochrome, with a faint wash of colour, but admirably careful and accurate, with the figures, looking quaint to us in their mid-Victorian dress, effectively introduced.

Talking to the artist recently before these paintings, dating from a time when, as he told me, the riverside life was full of movement and colour, one seemed to be carried back to another world than ours, and perhaps in many ways a pleasanter one to live in—a world from which, as he said to me, referring to Whistler, his brother and others, all were gone, only himself left behind. "As a boy," says Walter Greaves, "I used to row up Chelsea Creek which flowed from the Thames at Chelsea to Kensington, under Stanley and Stamford Bridges. It was very quaint and pretty on the Fulham side of the Creek, with the trees and market gardens, and the old house where Nell Gwynne lived, at the back of which were the Fulham meadows, noted for snipe-shooting." The Creek, even then narrow, has since been filled in, and Chelsea station placed on its site; and many of the old riverside taverns have now gone, such as "The Black Lion" in Church Street, the "Magpie and Stump" in Cheyne Walk, and "The Swan Tavern," where Whistler would often go of an evening late to take notes for his nocturnes. Mr. Greaves mentioned to me Cremorne Gardens, which appears in his drawings and etchings here, with a figure very like himself or his brother. "What with guns firing, flags flying, bands playing and the immense crowd of people, Chelsea was pretty lively on the occasion of its annual Regatta, 'The Adam and Eve,' the headquarters of the sport, was crammed with people, and one wondered how it stood the strain of such a weight, being a very old building. The old church entered into the gaiety, flying the white ensign at the top of its tower; and, of course, the old Battersea Bridge had its share of the crowd, as likewise the steamboat pier, which put the finishing touch to the scene."

This picturesque old wooden Battersea Bridge, long since gone, appears more than once in these drawings, as well as the taverns, "The Black Lion," "The Cricketers," and the "Adam and Eve" in Duke Street, which backed on to the river, and Old Chelsea Church, which happily still remains. The "Chelsea Regatta," a large oil painting, is one of the most remarkable of the paintings shown here, to be compared in its detail and delight in the material offered with the "Hammersmith Bridge," which last has now been acquired for the Chantrey Collection. The nocturne of "The Saw Mills, Battersea, Moonlight," the whole scene bathed in exquisite blues, is a delightful vision, but far nearer to Whistler than the two paintings mentioned just previously, which seem the expression of individual temperament. The etchings, of which there are some fifty shown here, though interesting seem to me less so than the drawings. What a delightful life it must have been in Chelsea of those old days, when, as Mr. Greaves tells us, "Whistler was continually in and out of our house, and all his spare time loved to be on the river '· often spending whole nights on the water, especially moonlight nights; when Mr. Lloyd George had not yet introduced his Budget with its "refreshing fruit"; when war was yet a dim cloud on the horizon, income-tax not yet a nightmare to the tax-payer, and the realms of art not yet invaded by Futurism, Cubism and Vorticism.

Upstairs in the Goupil Gallery we find an exhibition by Sylvia Gosse of oil paintings and water colours and drawings, in which I noticed especially these two last, very delightfully drawn in line with a soft pencil or crayon and a faint wash of colour, but with architectural features in such subjects as "Bath Abbey," "Lansdowne Crescent, Bath," "The Abbey Precincts, Bath," "The Weir below Pulteney Bridge," admirably suggested. Yet farther upstairs an exhibition is being held for the restoration fund of the Nuns of Ypres, whose Abbey in that city went down in flames in that fateful October of 1914; with pictures and drawings placed at their disposal by Sir John Lavery, Sir Reginald Blomfield, McEvoy, Laszlo, Shannon and many other well-known artists.

At the Cotswold Gallery, Miss Margaret Gere's paintings have taken the place of Mr. Griggs's drawings and etchings. Miss Gere is, however, like Mr. Griggs himself, a denizen of the Cotswold country, and her "Noah's Ark," painted in tempera on linen, the sketch for which is shown here, has been taken for the National Gallery of British Art. Another very attractive subject is "Toys," where the father is stooping to kiss his sleeping child: this has been only recently acquired, under the Felton Bequest, for the National Gallery of Victoria at Melbourne. "The Studio" said lately of Miss Gere's paintings that, like others of this Cotswold group, they "possess in common a love of lovely country, of green hills and stone buildings brooded over by a sense of ancient prosperity and greatness"; and this applies to many of the paintings here, very clean and fresh in colour, of which "The Healing of Naaman" is one of the most important. In many cases these seem to me to be painted in tempera; and this applies certainly to the "White Cottages in Anglesey," and probably to the large painting of the "Ten Virgins."

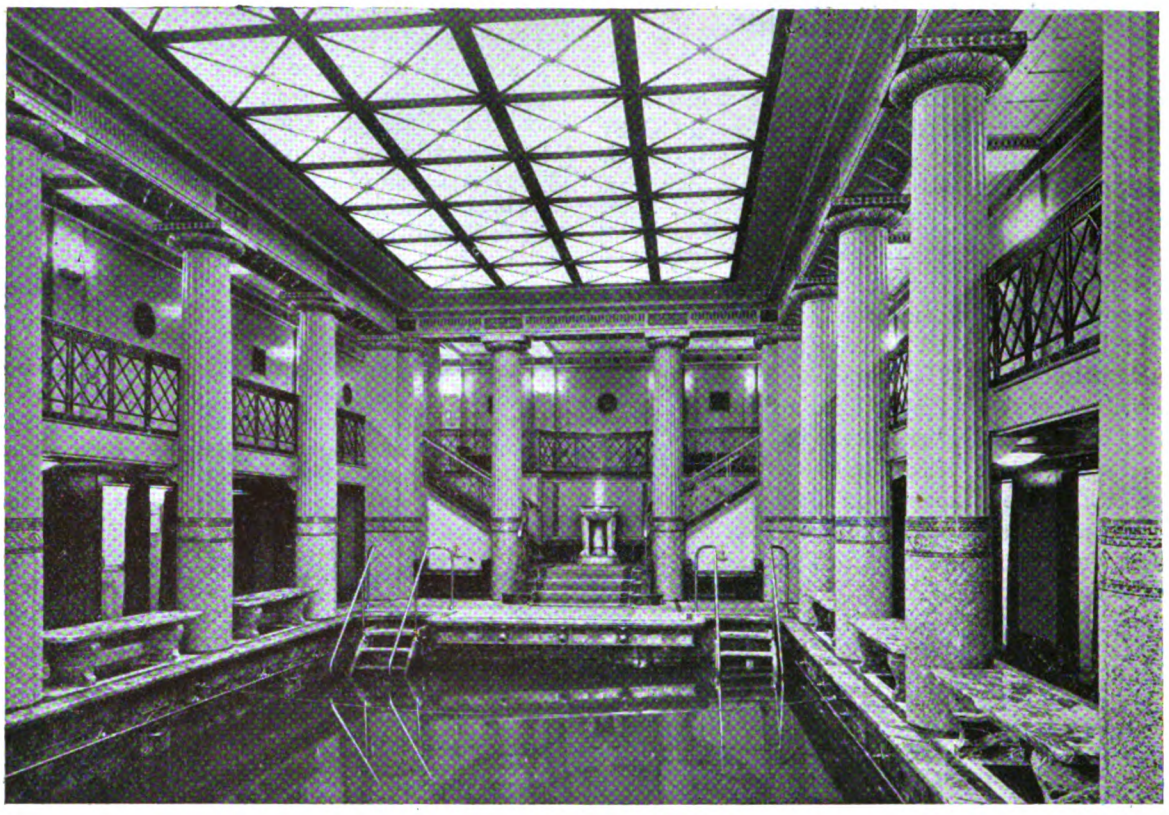
At the Architectural Association, Mr. F. R. Yerbury, who, in collaboration with G. M. Ellwood, published in 1918 a very useful series of Studies of the Figure, with anatomical notes, is now showing from May 1 to 31, a selection of his photographs, mainly dealing with architecture or landscape. Printed on what I believe is called "matt" paper there is no attempt here at finished detail, and indeed the artist said to me yesterday that what he aimed at was first good composition, and then effective light and shade: but the result, in such subjects as his "Rouen," "Béguinage, Bruges," or "Off Waterloo Bridge," is a very delightful camera picture.

At Walker's Galleries, Miss Bridget Keir's exhibition of London and Egypt, which I mentioned last week, and one of which, a painting of Burano seen across the lagoons I illustrate in this issue, has had distinct success; and at the Fine Art Society opened on May 17 the exhibition of water colours by W. Russell Flint, to which I have also alluded. This is a brilliant little display of forty paintings by an artist whose ability is already well known, but who here seems to me to strike out a new line in such a subject as his large water-colour drawing of "The Punishment of Vanity," where the culprits, two young women, have their hands attached to a yoke, and are being lectured as well as jeered at by their rivals. Elsewhere subjects from Spain ("Carcel para mujeres," "The Walls of Segovia," "Spanish Gipsies at Salamanca") alternate with snow-capped hills and those beach scenes in Northumberland or Iona in which this artist delights. Two most successful studies are "Garden Dianas" and "A Provençal Garden."

The President and Council of the Royal Academy have purchased under the Chantrey Bequest "Summer," by P. Connard, A.R.A., which I specially mentioned in this year's Academy, and the bronze head of Cardinal Manning, by the late J. Havard Thomas.

S.B.

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"THE MAJESTIC": VIEW OF SWIMMING BATHS. [*Photo: Bedford Lemere & Co.*

"The Majestic."

(See Inset Illustrations.)

We were greatly interested in the "Majestic," the newest addition to the White Star Line and the largest steamship in the world, with a tonnage of 56,000 and a total length of 956 ft. The giant vessel, which was launched before the war as the "Bismarck," was handed over by Germany in accordance with the terms of the Peace Treaty, and acquired by the White Star Line from the Reparations Committee. Seen at Southampton in close proximity to three other White Star leviathans, it needed careful examination to realise the enormous size of the ship. Once on board the sense of overwhelming size is obliterated by the internal subdivision of the skilfully planned interior, containing within its limits all the appurtenances of a very luxurious hotel.

Nothing could exceed the skilful manner in which the comfort and convenience of the passengers have been secured, and many will look back on a voyage as an introduction to the multiple devices which have been introduced in construction for the convenience of the modern world. As our illustrations show, the various rooms with their decorations might well be those of an expensive hotel or restaurant, with the proviso that in no modern restaurant have problems of ventilation and heating received as careful and thorough treatment. Defects which are inconvenient in an ordinary building are not necessarily material, but a liner is a self-contained city, linked, it is true, by wireless to the outer world, but containing within itself all possible safeguards against danger from the elements which beleaguer it in its passage from port to port, and under the rule of trained men who are in the true sense of the word among the only autocrats of the earth. The visitors to the "Majestic" were not afforded a view of the great turbines and engine-rooms of the vessel, which have been designed for oil fuel and will supply ample power to steam an average of about 27 knots an hour. What they were shown was the accommodation for every class of passengers for which the vessel, which carries little cargo, has been primarily designed, but the engineering plant and staff rooms take up 47 per cent. of the registered tonnage of the whole ship. The refrigerator stores occupy an area of over 5,000 ft., while the ship can carry over 4,000 passengers in three classes divided between eight steel decks, four of which are erection decks, covering half the entire length of the ship. As in the "Vaterland," the funnels of the steamer are carried up at the sides in two divisions and arched over to give more room for the arrangement of the great reception rooms, several of which we illustrate.

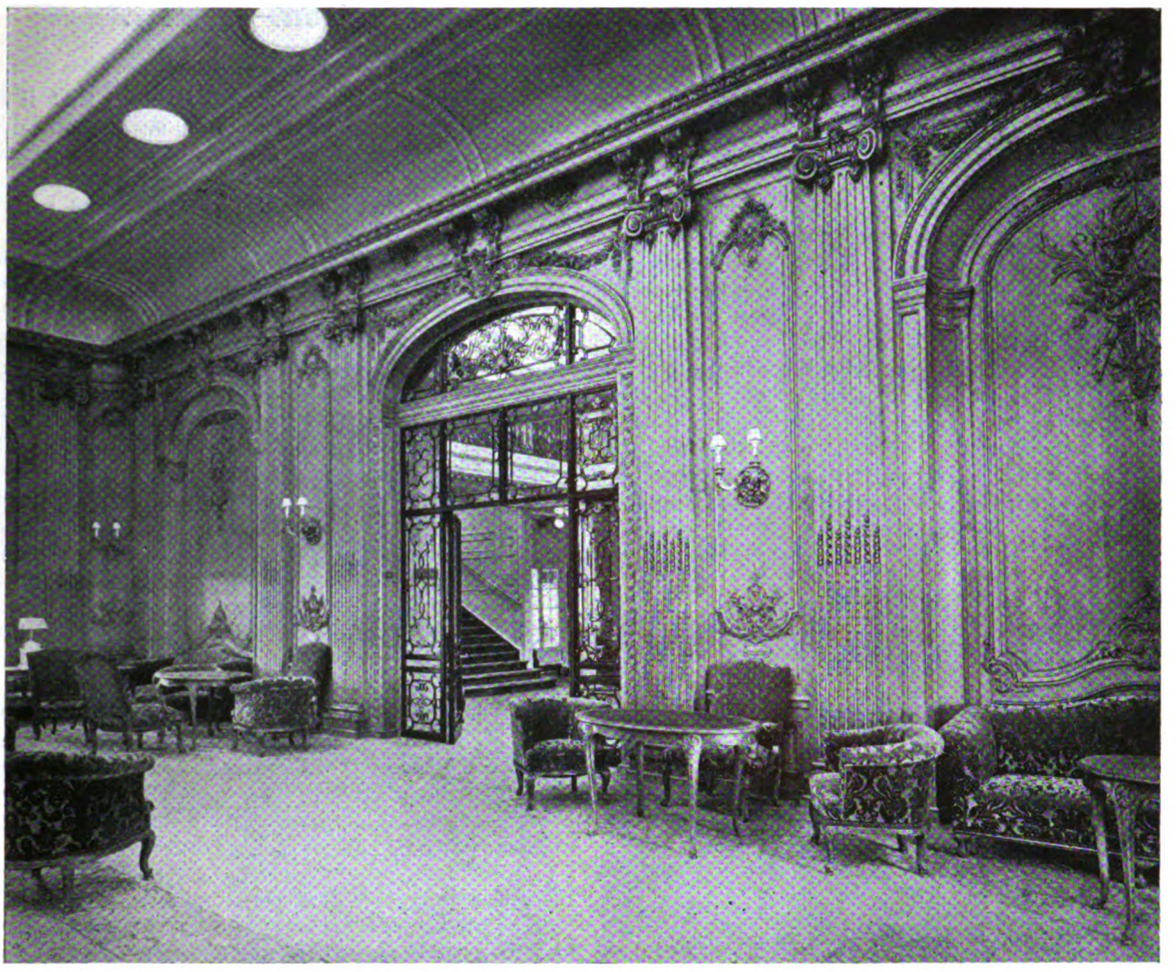
As an example of design the ship falls short of the standard set in the "Aquitania," a fact probably due to two factors: the first that the decoration is purely the work of German designers essaying a type of work which is for the most part French in intention; the second that the decoration and finishings were carried out after the war, when it was known by artists and constructors that the result of their work was the completion of a prize which, like the German fleet, was to be handed over to the victors. If inspiration and spirit influence design, as we claim, we cannot imagine anyone being spurred to do his best under such circumstances, and we are not surprised at a certain suggestion of heaviness and want of artistry in the great ship. But, however this may be, the main proportions and effect of the great rooms is handsome enough, and will give pleasure even to the critical. The best design is probably shown in the main entrance and swimming-bath, while the first-class dining saloon is a fine room, a little marred by the rawness of the manner in which curved intersection lines break into the curved cornice and the very crude paintings introduced into the domed ceiling.

But these are minor and immaterial defects in a vessel which is a triumph of the shipbuilders' skill, perfect in its equipment and arrangement, and one which the White Star Line are justly proud of having secured for their fleet.

The centres for the forthcoming R.I.B.A. Special War Examination, July 3-7, 1922, will be London and Manchester.

Mr. J. Fairley, M.D., and Mr. A. H. Worsley, A.R.I.B.A., Inspectors of the Ministry of Health, have been appointed to hold an inquiry at the Bradford Town Hall on May 30 into the application of the Corporation for sanction to borrow £100,000 in respect of expenditure incurred in connection with the erection and equipment of the Grassington Sanatorium and the Odsal Smallpox Hospital.

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"THE MAJESTIC": ENTRANCE TO LOUNGE. [*Photo: Bedford Lemere & Co.*]

Royal Institute of British Architects.

The following are notes from the minutes of the Council meeting held on May 15:—

Architects' Fees and Queen Anne's Bounty.—On the recommendation of the Practice Standing Committee, it was decided to make representation to the Queen Anne's Bounty Office with regard to the fees paid to architects.

Building By-laws.—A deputation was appointed to urge the Ministry of Health to extend the operation of Section 25 of the Housing and Town Planning Act of 1919 for a further period of at least twelve months.

Electric Lighting, Heating, &c.—It was decided to arrange for the holding of a joint meeting between the Royal Institute and the Institution of Electrical Engineers for the purpose of discussing papers on the use of electricity for the lighting and heating of buildings and for domestic purposes.

The British Engineering Standards Association.—Mr. Max Clarke was appointed to represent the R.I.B.A. on the Sectional Committee on Bridges and General Building Construction.

Fellowship of the R.I.B.A.—Under the provision of By-law 12, Major-General Sir Charles Rosenthal, K.C.B., A.R.I.B.A., was unanimously elected a Fellow of the Royal Institute.

Membership.—Twelve candidates for the Fellowship, twenty-four candidates for the Associateship, and ten candidates for the Hon. Associateship were duly nominated.

Owing to the generosity of Mr. A. Saxon Snell, the R.I.B.A. Henry Saxon Snell Prize has this year been increased by £10, bringing the value of the prize to £60. The subject set is a maternity home and infant-welfare centre. A memorandum setting forth the objects of such an institution and further particulars may be obtained, free of charge, from the Royal Institute.

The design submitted to the General Committee of the Borough of Tynemouth War Memorial has been approved and adopted. It is the work of Mr. Burns Dick, of the firm of Messrs. Cackett & Burns Dick, architects, Newcastle. The architects are proceeding with the preparation of detailed plans.

"The Architect" Fifty Years Ago.

MAY 25, 1872.

SCIENTIFIC PROGRESS IN ENGLAND.

Dr. Frankland, in his evidence before the Royal Commission on Scientific Instruction, expresses his conviction that scientific research does not make such progress in Great Britain as in Germany or in France. He ascertained the number of original chemical investigations made in each country during 1866, and found that 1,273 papers were published by 805 chemists. Of these, Germany contributed 445 authors and 777 papers; France 170 authors and 245 papers; the United Kingdom, 97 authors and 127 papers. As far as research in Great Britain depends upon our own scientific training, our case is very much worse than appears from this comparison, because a large proportion of those papers contributed by the United Kingdom were the work of Germans residing in this country, but who had not been trained in this country.

Forthcoming Events.

Friday, May 26.—Town Planning Institute. Meeting at the Institution of Mechanical Engineers, Storey's Gate, St. James's Park, S.W. Paper by Mr. Raymond Unwin, F.R.I.B.A., entitled "Zoning Proposals." 6 p.m.

— Institution of Municipal and County Engineers. Eastern District Meeting at Willesden. 10.30 a.m.

Saturday, May 27.—Architectural Association. Visit to Great Fosters, Egham (Tudor House with alterations and additions by Messrs. Romaine Walker & Jenkins). Train from Waterloo, 2.18 p.m.

Monday, May 29.—Royal Institute of British Architects. Meeting at 9 Conduit Street, W. Paper by Mr. William Harvey, Owen Jones Student, 1913, entitled "Colour in Architecture." 8 p.m.

— Architectural Association. Special general meeting to hear result of ballot for Council and Officers.

— Surveyors' Institution. Annual general meeting at 12 Great George Street, Westminster, S.W. Report of Council and Distribution of Prizes. 5 p.m.

Wednesday, May 31.—Royal Society of Arts. Meeting at John Street, Adelphi. Paper by Mr. Lawrence Haward, M.A., entitled "The Manchester Art Gallery and the Problem of Provincial Collections." 4.30 p.m.

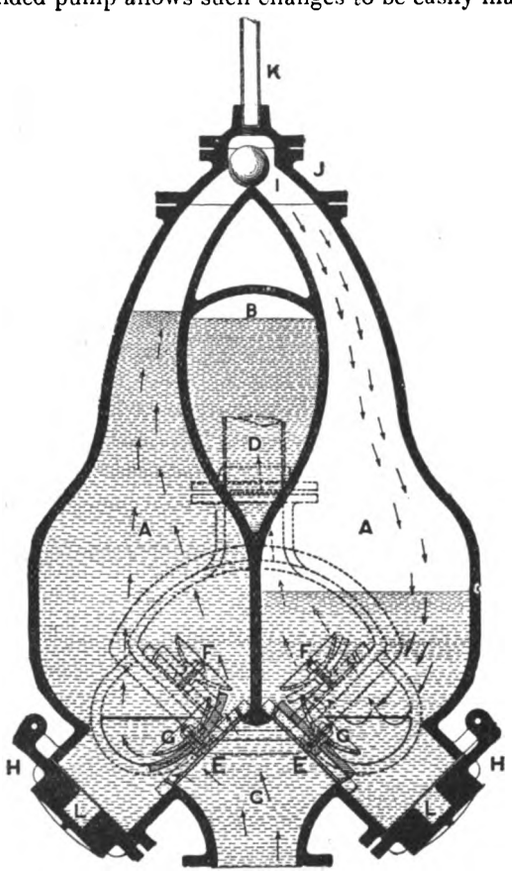
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Modern Methods in Building Construction.—XVIII.*

By Albert Lakeman, M.S.A., M.C.I.

FOUNDATIONS ON SOFT SOILS—(*continued*).

Pumping.—The selection of the type and capacity of the pumping installation is an important matter as a breakdown in the system or failure to do the work calculated may result in a suspension of the operations within the coffer-dam and possibly damage to the work executed prior to flooding. The pumps should be as simple as possible to minimise any risk of failure, and the working parts must be arranged to allow the pump to deal not only with the water, but with any sand, mud, or foreign substances which are liable to be lifted through the suction. It is preferable to have a type of pump which does not require a rigid foundation, as it is frequently necessary to suspend the equipment within the coffer-dam and also to make changes in the level during the operations, and a suspended pump allows such changes to be easily made.



Section showing the Pump fitted with Grid Valves.

FIG. 101.—PULSOMETER STEAM PUMP.

One of the best known types of pumps in use for pumping out foundation excavations and similar work is the Pulsometer steam pump made by the Pulsometer Engineering Co., Ltd., of Nine Elms Iron Works, Reading. This type is very simple, and it has no piston rods, slide valves, or glands, thus reducing the risk of failure in action to the minimum. A section of the pump for the purpose of illustrating the method of working is shown in fig. 101, and it will be seen that it consists of a cast-iron body provided with suction and discharge valves. The body is formed in one casting, composed of two chambers (A A) joined together and communicating with a third chamber called the discharge box, and a fourth chamber called the air vessel; the latter, which has for its object the steadying of the pump's action, is on the suction (C) side of the pump. The valves are arranged in the following manner: Surmounting the body is a steam control valve called the "neck" (J) containing a gunmetal ball (I). This apparatus, which corresponds to the slide valve in the case of an engine, is connected with the steam pipe, and controls the admission of steam to the two chambers. The casting takes the form of a Y-piece joining the steam pipe (K) to the two chambers, and at the junction two seats are formed, being accurately machined and scraped. Between these seats the ball oscillates, allowing steam to enter the chambers alternately. The arrangement of the water valves is equally simple. The suction valves (EE) which are placed at the base of the two chambers control the opening from the suction inlet with which they are connected. Immediately above the suction valves the two chambers communicate with the discharge box, the passage thereto being controlled by the discharge valves (F F). In addition to the above valves there are three small gunmetal valves, not shown on the drawing, for the admission of air, one of each being screwed into the upper part of the two water chambers and the air vessel. When the pump is in operation the steam entering by the steam pipe and past the ball passes into the chamber which is open and presses upon the small surface of water exposed, and depresses it without agitation (and therefore with little condensation), and drives it through the discharge valves into the rising main. The moment, however, the water in the chamber falls to the level of the opening in the branch leading to the discharge box the steam blows through with a certain amount of violence, and as it is brought into intimate contact with the water in the discharge box an instantaneous condensation takes place, and the vacuum thus formed in the empty chamber immediately pulls the control valve over on to the corresponding seat and cuts off further admission of steam allowing the vacuum to be completed. Water immediately enters through the suction pipe, and lifting the inlet valve rapidly fills the chamber again. A similar operation has been taking place in the fellow chamber, the period occupied by filling one chamber corresponding to that of emptying the other, and these operations continue alternately in the two chambers so long as the pump is supplied with steam and water. The alternations follow so rapidly and with such regularity that the stream of water is practically continuous. The function of the air valves is to introduce a small quantity of air at each stroke or "pulsation" for the purpose of cushioning the ball when it changes its position, and for separating the steam from the water by a non-conducting film so as to prevent loss by condensation during the expulsive portion of the cycle. Air being lighter than water and heavier than steam fulfils this duty in an admirable fashion.

It is claimed that the action of the steam ball is certain, and the pump, no matter how long it may have been standing, will start as soon as dry steam is admitted. The steam ball, if once made true, wears itself and its seat true, as it turns on its bed at every stroke so that no part of its surface falls twice in succession upon the seat. The makers consider that a properly constructed spherical steam valve working in a true seat has proved itself the best of all forms of distributing valve which has been invented. The Pulsometer Co. also claim that the success of the pump is not due merely to the intrinsic merits of its underlying principle, but to the perfect proportions of its design, and to its sound and careful construction. They state that no pains have been spared to make the pump durable and easy to handle, and its life compared with any other form of pump is phenomenal, the replace-

*PART I.—I. Introduction, Steam shovels, Jan. 13; II. Steam shovels, Trench diggers, Jan. 20; III. Grab buckets, scrapers, Jan. 27; IV. Drag-line excavators, Feb. 3; V. Derricks and cranes, radial loader, paving-breakers, Feb. 17; VI. Surplus Soil Transport (Hand Labour), Feb. 24; VII. Surplus Soil Transport (Horse-drawn wagons, Steam-driven wagons), Mar. 3; VIII. Surplus Soil Transport (Steam-driven wagons), Mar. 10; IX. Surplus Soil Transport (Steam-driven wagons, Petrol wagons, Narrow-gauge track with wagons), Mar. 17; X. Surplus Soil Transport (Narrow-gauge track with wagons, Trucks on Standard-gauge track, Electrically-driven trucks and vehicles), Mar. 24.

PART II.—XI. Foundation Work (Ordinary soils, Soft soils), April 7; XII. Foundation Work (Soft soils), April 17; XIII. Foundation Work (Soft soils), April 21; XIV. Foundation Work (Soft soils), April 28; XV. Foundation Work (Soft soils), sheet piling, May 5; XVI. Foundation Work (Soft soils), steel-sheet piling, May 12; XVII. Foundation Work (soft soils), steel-sheet piling, pumping, May 19.

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ment of the few wearing parts making the pump equal to new. All joints, internal and external, are machined, and the valve seats are well secured by a number of bolts. The suction and discharge doors are hinged for ready access to the valves, and in the larger pumps auxiliary handhole doors are also provided. The seats for the steam admission valve are accurately machined, and the oscillating ball is perfectly spherical to a thousandth of an inch. Every pump is carefully tested on an actual column of water to a lift of 90 feet, and its performance is recorded for reference.

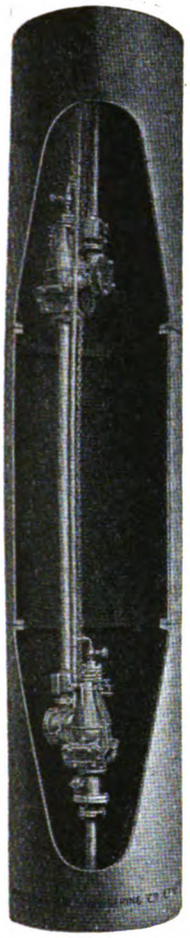
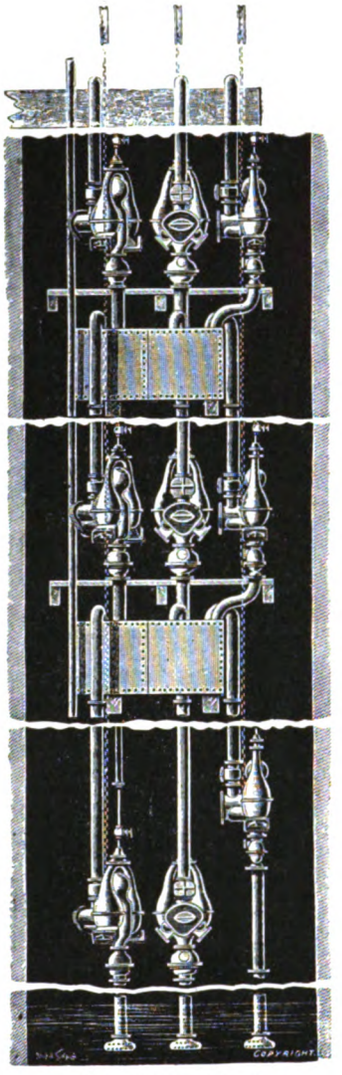


FIG. 102.
PULSOMETER PUMPS
"Direct Action."



"Interrupted Tandem."

FIG. 103.
PULSOMETER PUMP

No fixing for the pump is required when in use as it can be suspended from a chain, which is an advantage in excavation work, and by the use of steam hose the pump can be raised or lowered while working without breaking pipe joints. Sliding suction pipes can also be obtained, and these will be useful in many schemes. Another advantage of this type of pump is its simplicity of operation which enables it to work day and night without attendance as long as steam and water are supplied to it. The Pulsometer Engineering Company state that they have had these pumps working for weeks together without anyone going near them, and this is not possible, of course, with a type of pump which requires lubrication or packing.

Some particulars regarding the capacities of the Pulsometer steam pump should be useful and these cover ordinary, high and extra high lifts.

The standard pattern has an ordinary lift of 90 feet, and every pump is actually tested on this lift before leaving the works where it is made.

The steam pressure required at the pump is 60 lb., and the necessary allowance for loss between the boiler and the pump must be made.

The high-lift type is a special pattern, but it is supplied without extra cost if the lift is specified when the order is placed. The lift covered by this pattern is 150 feet, and the steam pressure required at the pump is 90 lb. For extra high lifts a special pattern is made, and although the Pulsometer type will work on lifts of considerably more than 150 feet, the makers recommend "tandem" working for lifts above this figure. The method of working the pumps in tandem is shown in figs. 102 and 103, where fig. 102 indicates the "direct tandem," and fig. 103 the "interrupted tandem." The former system is considered preferable as the discharge from the lower pump delivers into the suction pipe of the upper, and it is therefore extremely simple.

Generally speaking, it will be advantageous to place the pump on a short suction of about 10 feet vertical, but this figure can usually be increased on ordinary lifts to 18 feet when necessary. The horizontal length is not very material, provided the friction is kept low by increasing the size of the pipe. It is preferable to keep the

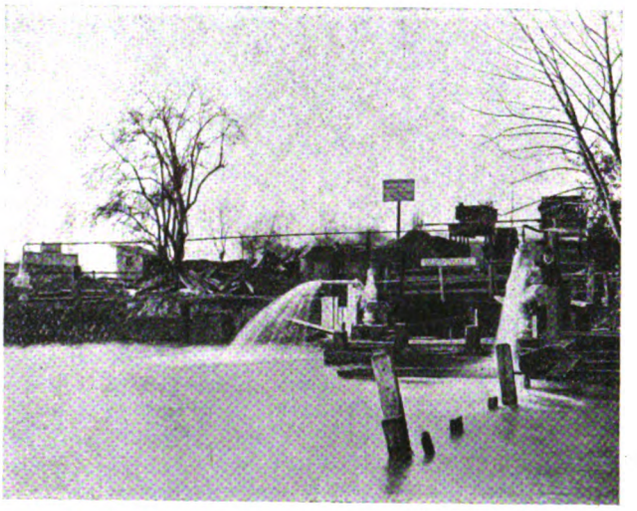


FIG. 104.—PULSOMETER STEAM PUMP IN ACTION.

pump itself above the water-level but when necessary it can be submerged and will be found to work satisfactorily, although the quantity of water discharged will be somewhat reduced.

One of the special features claimed by the makers of the Pulsometer type is its capacity for dealing with fluids containing a large percentage of foreign material. This foreign material may consist of gravel and sand met with in sinking an exacavation, mud from the bottom of rivers, sewage and sewage sludge or cement slurry, and the amount of the foreign matter in some liquids pumped reaches as high as 50 per cent. If the liquid to be dealt with contains a large percentage of grit, a special pattern of pump fitted with renewable lining plates can be supplied. An example of the Pulsometer steam pump in action on contractor's work is shown in fig. 104, and the good discharge can be seen.

Thirteen different standard pumps are available with a capacity ranging from 1,000 to 150,000 gallons per hour for a total lift of 20 feet. On lifts above this height an allowance must be made for friction and the conditions under which the pump is working. The horizontal length of the suction and discharge pipes must also be considered as the friction in these will affect the quantity thrown.

The No. 1 pump with the capacity of 1,000 gallons per hour only occupies a space of 10 in. by 9 in. and it has ¼ in. diameter steam pipe, a 1½ in. diameter suction pipe, and a 1 in. diameter discharge pipe.

The No. 12 pump with the capacity of 150,000 gallons per hour occupies a space of 69 in. by 62 in., and has 2½ in. diameter steam pipe, 12 in. diameter suction pipe, and 10 in. discharge pipe.

The ranges between these two sizes will enable the

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contractor to select one or more, which will deal with any problem of pumping met with in foundation work. The Pulsometer Engineering Company also supply all types of fittings for use in pumping work and boilers in addition to the Pulsometer steam pump. They are also manufacturers of turbine, centrifugal, stereophagus, sinking and vacuum pumps for general and special purposes.

The various types of Cameron pumps are supplied by The Ingersoll Rand Company, Limited, of Queen Victoria Street, London, and although many of these are designed for permanent pumping stations, a type is made for use on construction work where excavations have to be made below water level. This is a vertical plunger sinking pump, known as The Cameron Contractors Differential Type, and it is particularly adapted for situations where the lift is light and the water contains considerable sediment. Lightness is one of the essential features, and this is achieved by discarding the valve chest, which is an important part in the other Cameron piston pumps, and placing the valves in the lower cylinder and plunger. The flow of the water is in one direction, which reduces the frictional resistance and prevents the accumulation of sediment over the valves. An illustration of this type of pump is shown in fig. 105, and it will be seen that slings are provided for lifting and suspending the equipment when in operation. The displacement in gallons per hour is 3,000 under normal conditions, and the maximum displacement achieved is 3,780 gallons per hour. The steam pipe has a diameter of ¾ in., the suction pipe is 3 in. diameter, and the discharge pipe is 2½ in. diameter, while the total weight of the pump is 530 lb. The Ingersoll Rand Company also supply all the necessary parts and fittings for various kinds of pumps, while the types of Cameron pumps supplied include single suction volute class centrifugal pumps, double suction centrifugal type, simplex direct-acting pumps, and centrifugal multi-stage turbine pumps. It is not proposed to describe these types in detail, as they will apply more generally to permanent work, which does not come within the scope of pumping for excavation work.

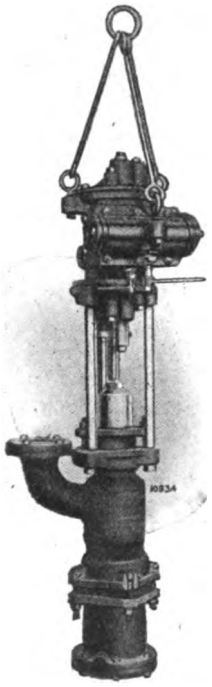
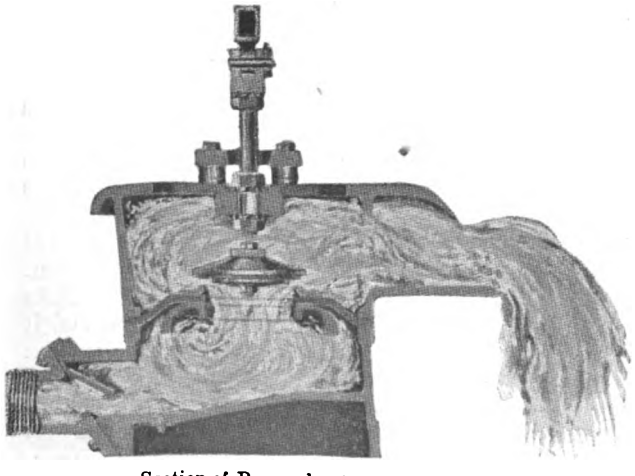


FIG. 105
CAMERON PUMP.
Contractor's Differential Type.

The "Domestic" Diaphragm Power Pumping Units, which are suitable for contractors' work, are supplied by Millar's Timber and Trading Company, Limited, of Pinners Hall, London, and these are designed specially to handle economically and quickly large quantities of water containing mud, sand, silt, sludge, or other foreign matter.



Section of Pump, showing Flow of Water.

FIG. 106.—"DOMESTIC" POWER DIAPHRAGM PUMP.

A section of the pump showing the flow of water is given in fig. 106, and the makers claim that the Poppet valve with outside guides, which is a "Domestic" patented feature, in connection with the straight lift, allows the discharge valve to rise from its seat equally at all points, thereby giving a large unobstructed area opening through which the water rushes. This unobstructed rush of water over the valve-seat carries with it all foreign particles, such as pebbles, sand and mud, and the valve-seat, which is higher than the surrounding metal, has a rounded surface with freedom from recesses or pockets in which such materials can lodge. The suction valve is set at an angle of 45 degrees, and it closes positively and quickly the moment the uprush of water ceases, and it does this regardless of whether the pump is set level or not. This allows the down stroke of the plunger to displace the maximum amount of water drawn into the pump chamber. Discharge and suction valves both have machined seats and rubber-faced valves. It is claimed that in actual tests this pump has worked perfectly with a suction lift of 28 ft. The makers also claim that the discharge of water per stroke is increased at high speeds, or, in other words, the discharge per stroke is greater at sixty-five strokes per minute than at forty strokes per minute, which they state is an unusual feature in diaphragm pumps.

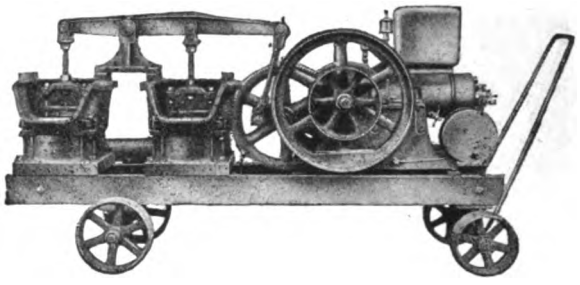


FIG. 107.—DOUBLE DIAPHRAGM POWER-PUMP UNIT.

Different sizes of pumps can be obtained, and they are generally arranged as a complete portable unit with engine mounted on a low hand-truck. This method enables the outfit to be moved about on the site, and no special foundation is required on the job. The No. 4 pump unit is composed of a No. 4 pump and a "Domestic" special integral back-gear pumping engine of 2. h.p. with high-tension magneto. The actual delivery in gallons per hour on tests at 15 ft. lift equals 11,040, and the displacement in gallons at seventy strokes per minute is 8,400. The suction hose or pipe is 4 in. diameter, and the maximum suction lift is 25 ft.

An example of a double diaphragm power-pump unit is shown in fig. 107, this consisting of two No. 4 pumps and a 4-h.p. engine. The actual capacity in gallons per hour of this unit is from 16,000 to 20,000.

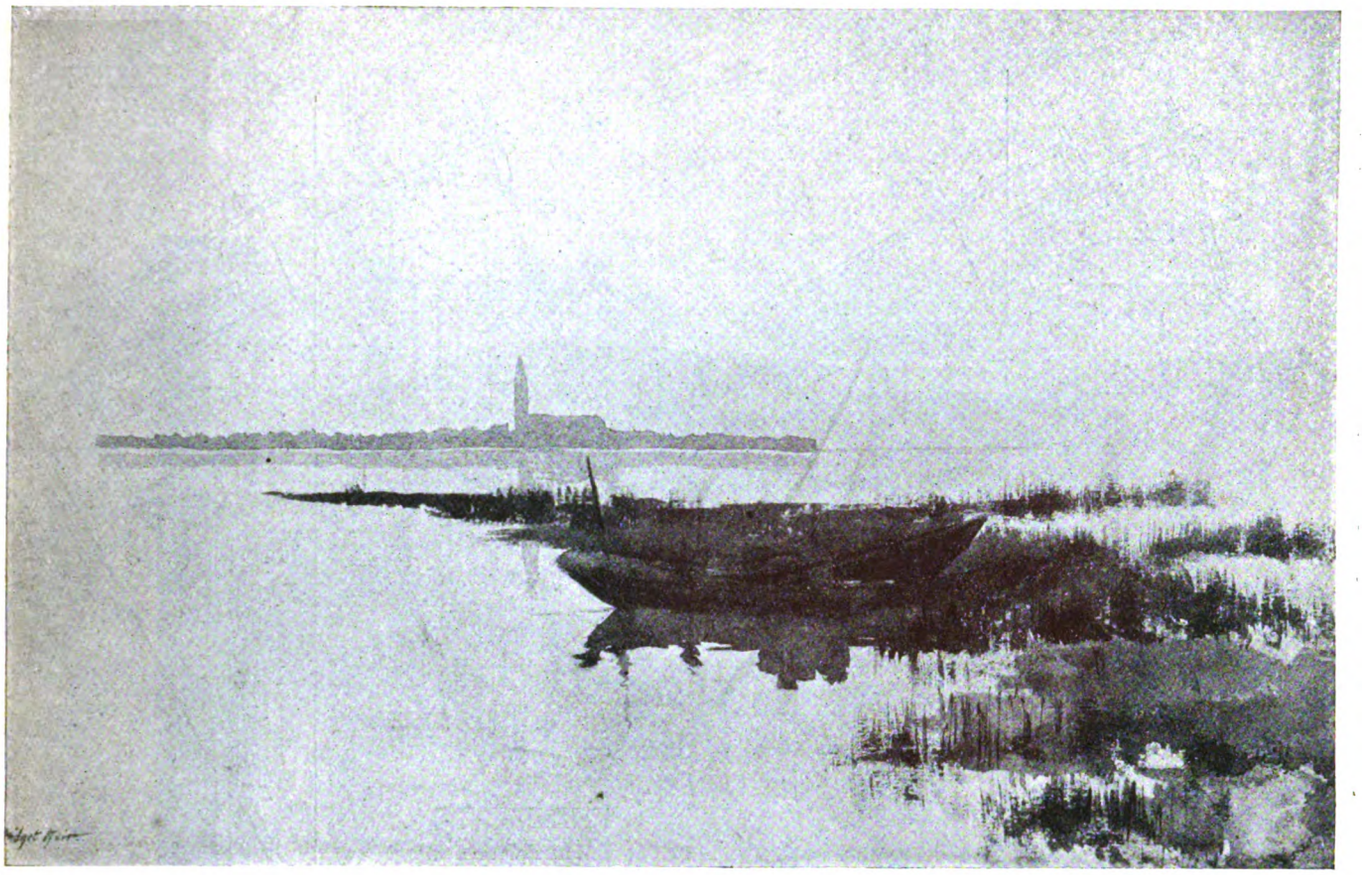
The makers of these pumps also supply other types of pumps and all fittings and accessories, but the type here described is the most suitable for general contractors' work.

The foregoing notes on pumping should be sufficient to indicate the importance of this section of the work of constructing foundations in soft soils where water has to be dealt with, and the type of equipment to be used. One or more suitable pumps should form part of every contractor's plant, and when dealing with the question of capacity it is advisable to acquire sufficient equipment to give a margin on any particular scheme in hand, and at the same time provide the type of pump which will be applicable to work of a varied character.

(To be continued.)

Alderman Lewis John Carter, J.P., of Colebrook, Winchester, of Carter & Son, plumbers, sanitary engineers, and builders, mayor of Winchester in 1891-92, who died on December 13, aged seventy-two, has left an estate of the gross value of £42,492, with net personalty £10,236.

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By Miss Bridget Keir.] AN ISLAND IN THE LAGOONS OF VENICE. "The fountain of perpetual peace flows there." [Walker's Galleries, New Bond St., W.

Correspondence.

"Current London Prices."

To the Editor of The Architect.

Sir,—I do not wish to take up too much of your space, but would like to reply to the letter in to-day's issue of The Architect by "The Contributor of our 'London Prices,'" which is more or less a "get-out."

Your correspondent states that 90 lb. per cubic foot is an accepted weight for cement. I might add that it is the *generally* accepted weight. However, whatever the weight, my letter of the 9th inst. sought to show the *method* or *system* of using the figures or data, whatever they might be, and your correspondent uses a very similar method in his letter in to-day's issue. I take it a contractor, especially one who is carrying out work in different parts of the country, would prefer to work on a standard method employing the necessary figures applying to the particular case he is dealing with. For this reason I still maintain that the method mentioned in my letter of the 9th inst. is more correct than that given by your correspondent. By the way, he remarks that as the difference between the cube yard in bulk and the ton avoirdupois of London Custom Portland cement is so small and a slight wastage is unavoidable, it is usual to regard them as equal. This is getting away from the *method*, and dealing with actual figures again, in which case I would point out that, in my opinion, and most probably in that of many other people, the allowance of 33⅓ per cent. already made for "shrinkage, compression, waste, and cement lost in voids" is well on the high side.

I most certainly cannot agree with the statement that the sack hire will not vary, the bulk being unchanged whatever the weight. Might I point out that, taking the extremes given—i.e., 75 lb. to 110 lb. per cube foot—one would get, say, ten bags to the cube yard in the first case and, say, fifteen bags in the latter case. This is working on the eleven bags to the ton, and ignores the fact that a method is wanted that will suit equally well when there are ten or twelve bags to the ton.

No, I think I shall adhere to my own way of working.—Yours, &c.,

Frank Buttery, A.C.W.A.

62 Portelet Road, Liverpool,
May 19, 1922.

[We have received the following reply to the foregoing letter.—Editor.]

Sir,—In reply to Mr. Buttery's letter of the 19th inst., I fear I can add nothing to my previous reply, which was a plain statement of fact, competent of confirmation by any who chose to test its accuracy, on each and every point.

With reference to the sacks, why the sack hire should vary I really do not know—I cannot conceive a yard of cement occupying more than 27 feet cube, whatever its weight.—Yours, &c.,

The Contributor of 'London Prices.'

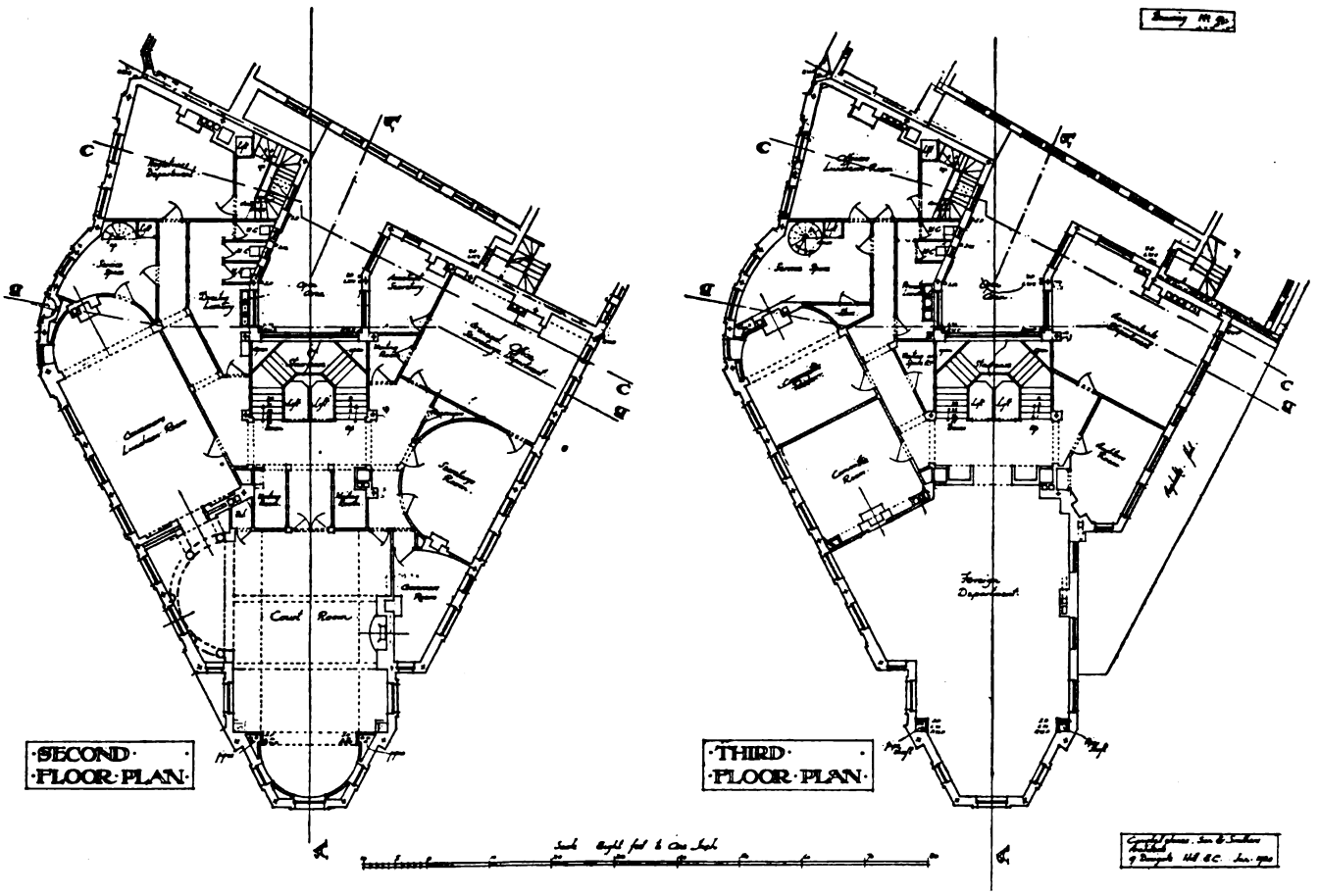
The Executive Committee of the Hospitals of London combined appeal have awarded the prize of 100 guineas offered for the best poster design submitted in connection with the appeal to Mr. F. H. Ball, Hillcrest, Haywood Road, Mapperley, Nottingham. Some 300 designs were sent in.

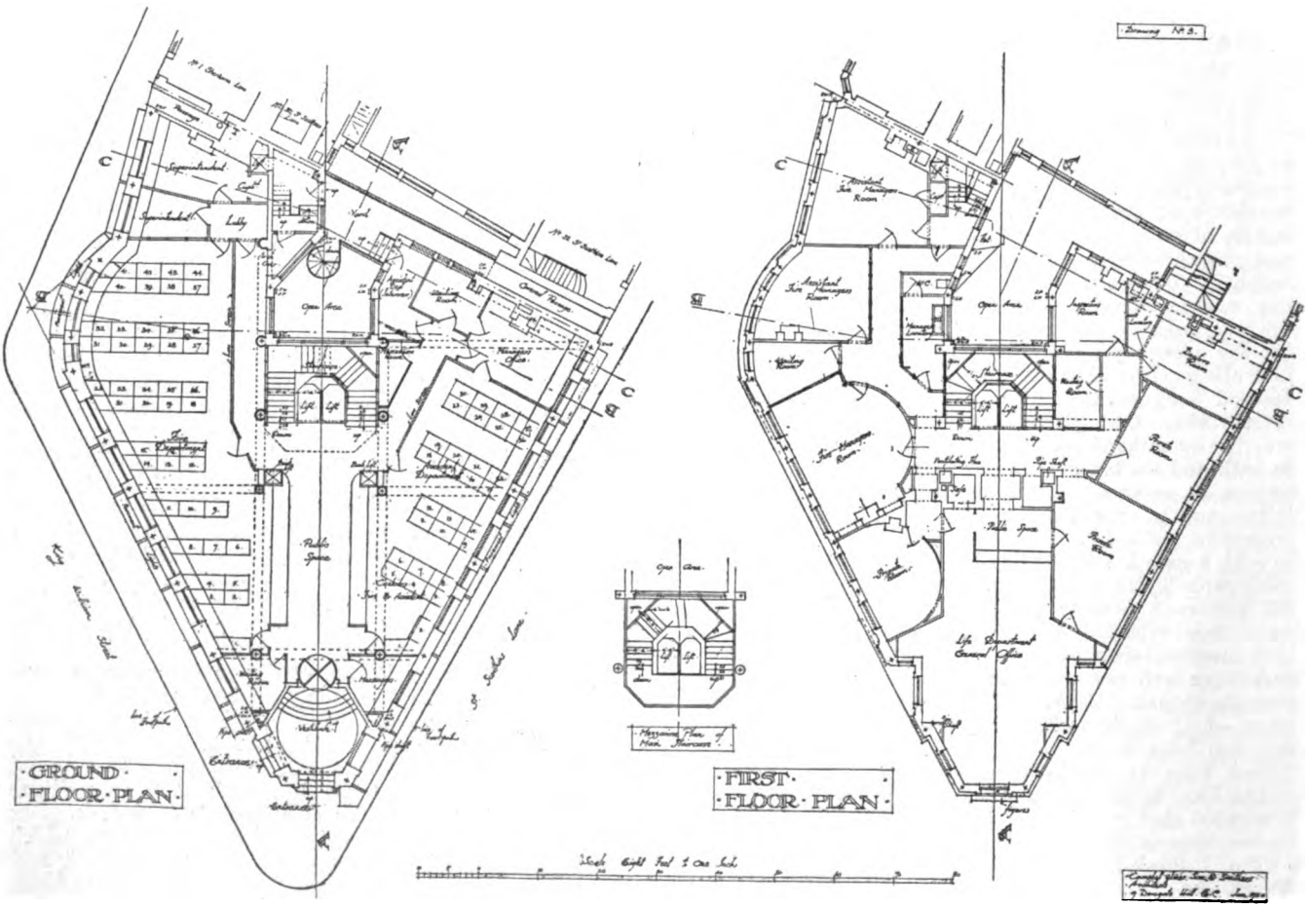
Mr. Alexander Hamilton Thompson, M.A., F.S.A., Reader in Mediæval History in the University of Durham, has been appointed Reader in Mediæval History in Leeds University. Mr. Thompson, who was educated at Clifton College and St. John's, Cambridge, is a distinguished mediæval scholar. He has edited the "Archæological Journal" since 1919, and is Secretary of the Surtees Society.

The death of Mr. William Longden, managing director of the firm of Messrs. George Longden & Son, Ltd., building contractors, Neepsend, Sheffield, occurred on the 18th inst. at his residence, after a comparatively short illness. The late Mr. Longden was a well-known figure in the building trade throughout the country. He took an active interest in the work of the Sheffield Master Builders' Association, and held office as President for the years 1910 and 1911.

The Royal Alexandra Infirmary, Paisley, which was completed twenty years ago, is about to be extended by the addition of an annexe. Plans of the addition were passed by the Dean of Guild Court last week. The expenditure will amount to several tens of thousands of pounds. Six blocks of buildings are comprised in the new annexe, which will be built within the grounds at Barbour Park and attached to the existing erections. Mr. T. Graham Abercrombie, architect of the original infirmary buildings, has prepared the new plans, and the work of erection will be begun immediately.

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NEW OFFICES FOR THE LONDON ASSURANCE CORPORATION, KING WILLIAM STREET, E.C.
CAMPBELL JONES, SON, AND SMITHERS, Architects.

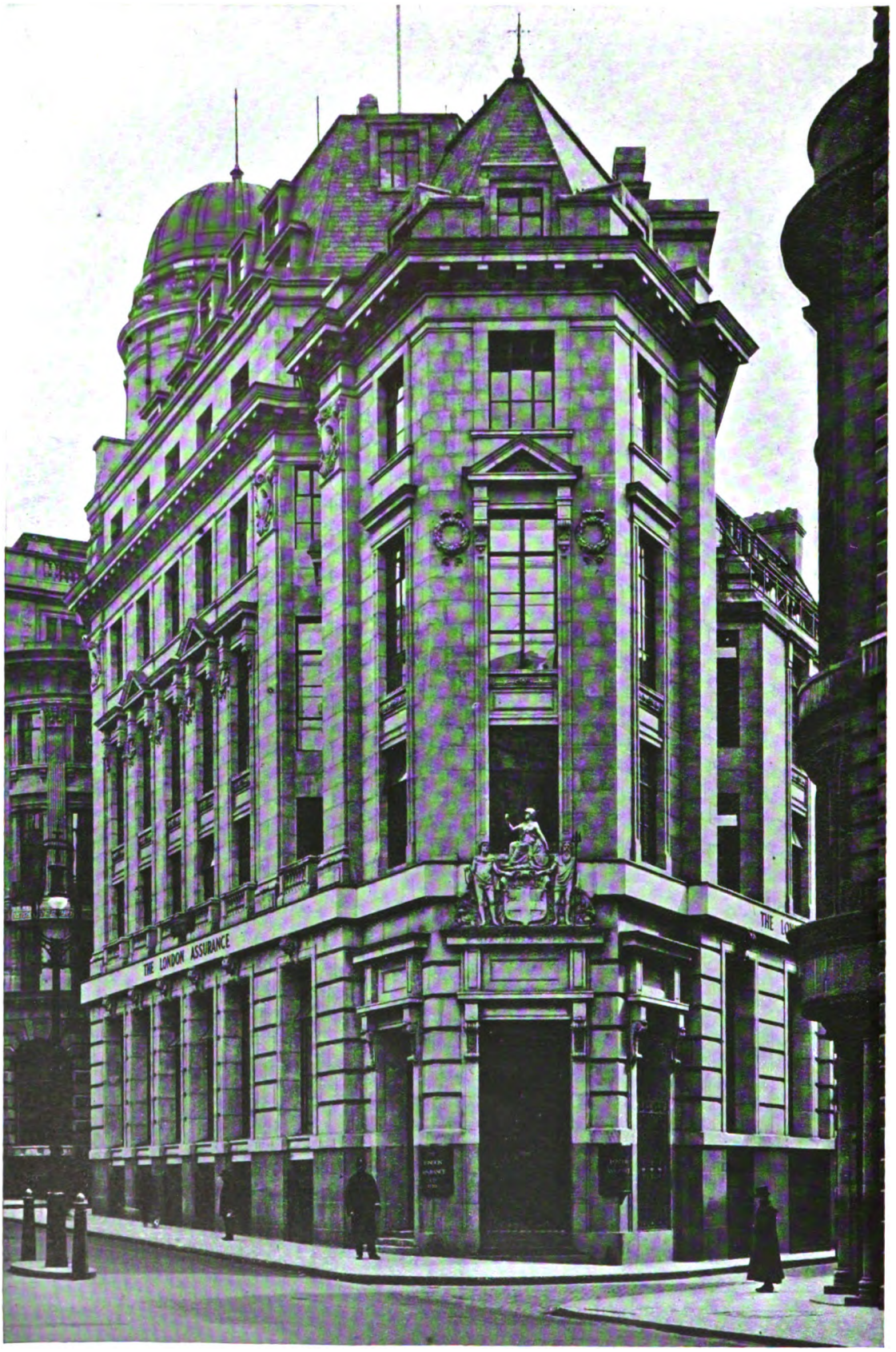
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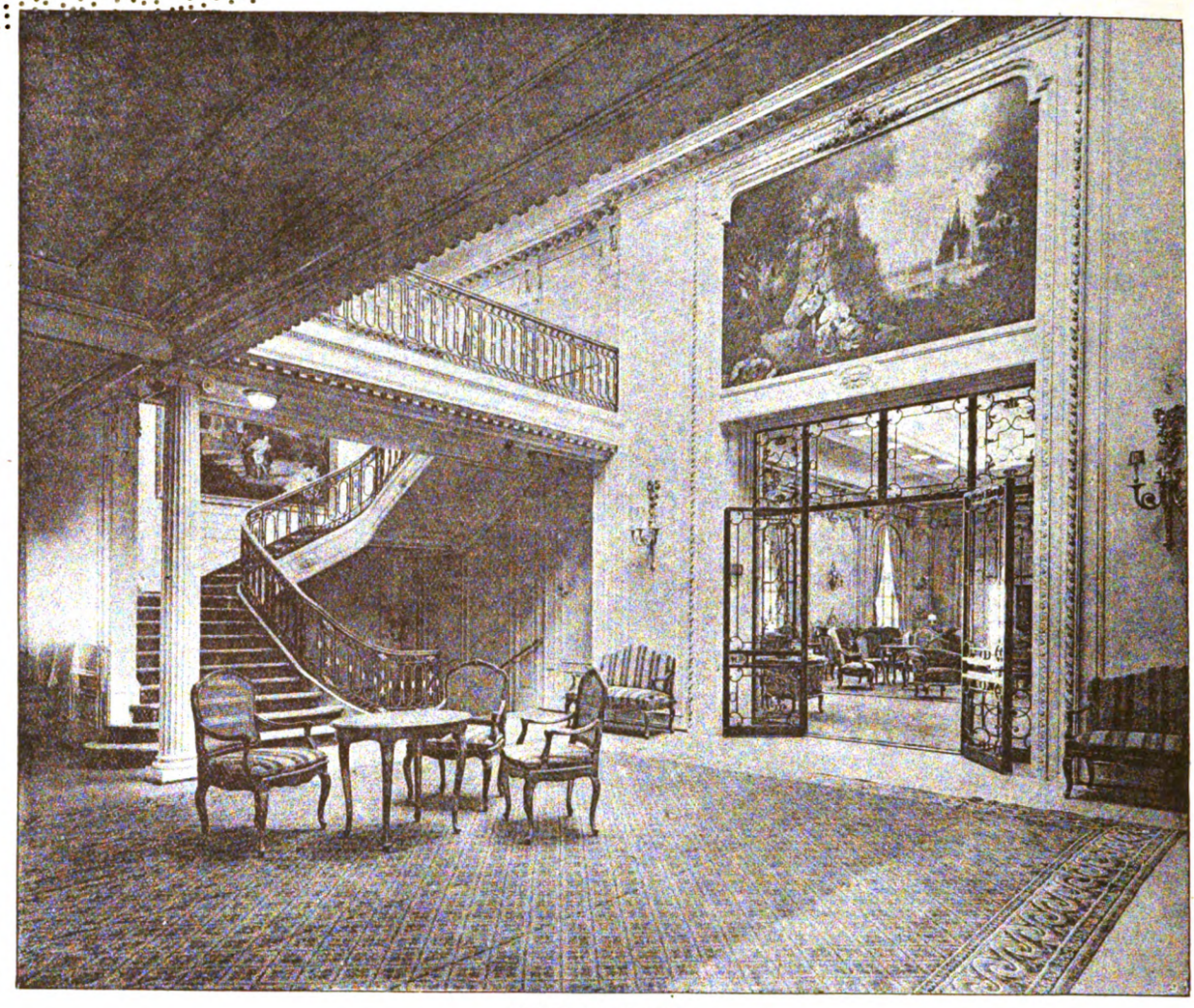


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FOYER TO LOUNGE.



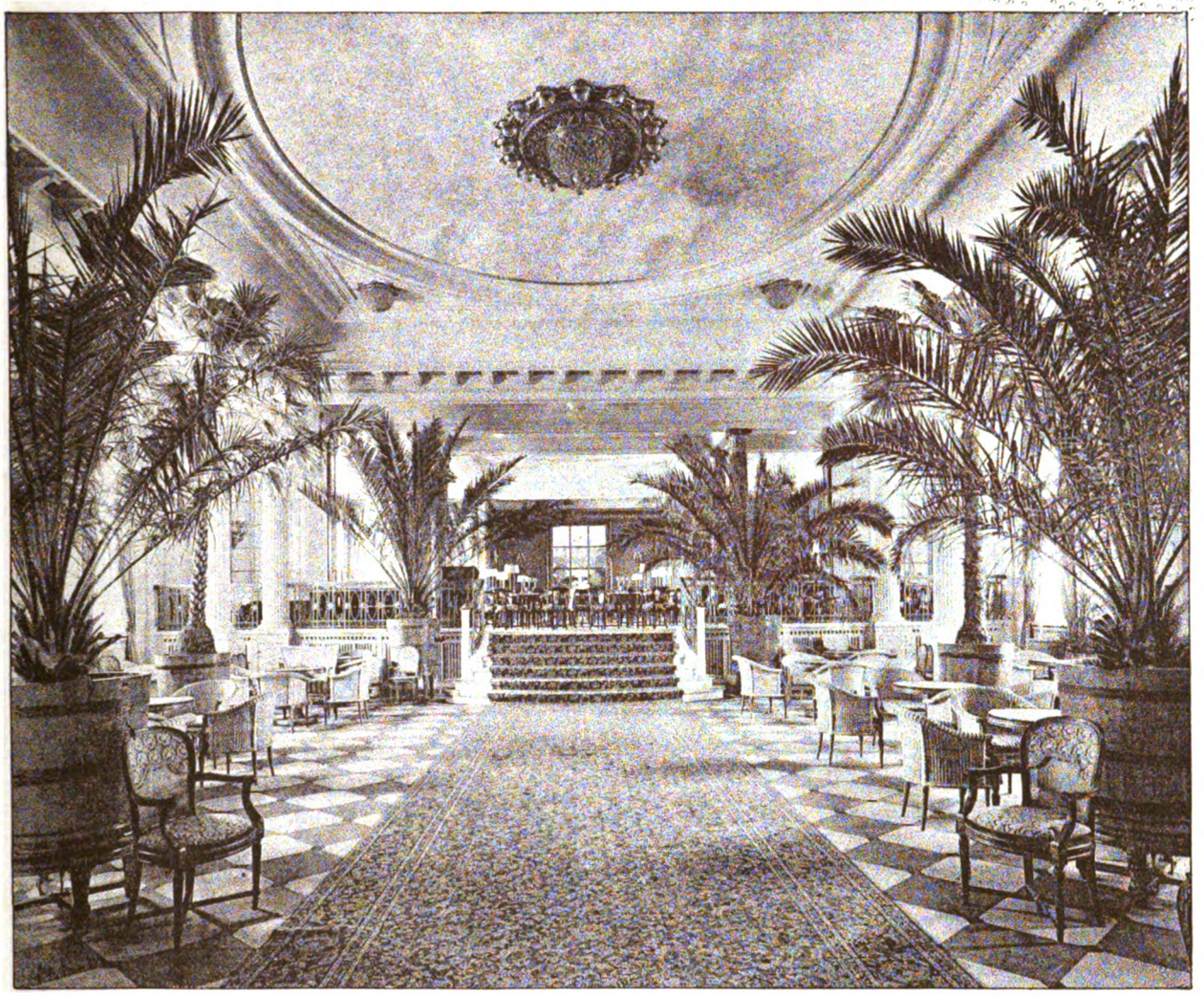
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DINING SALOON LOOKING FORWARD.

THE WHITE STAR S.S. MAJESTIC, *ex* BISMARCK.

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PALM COURT GENERAL.

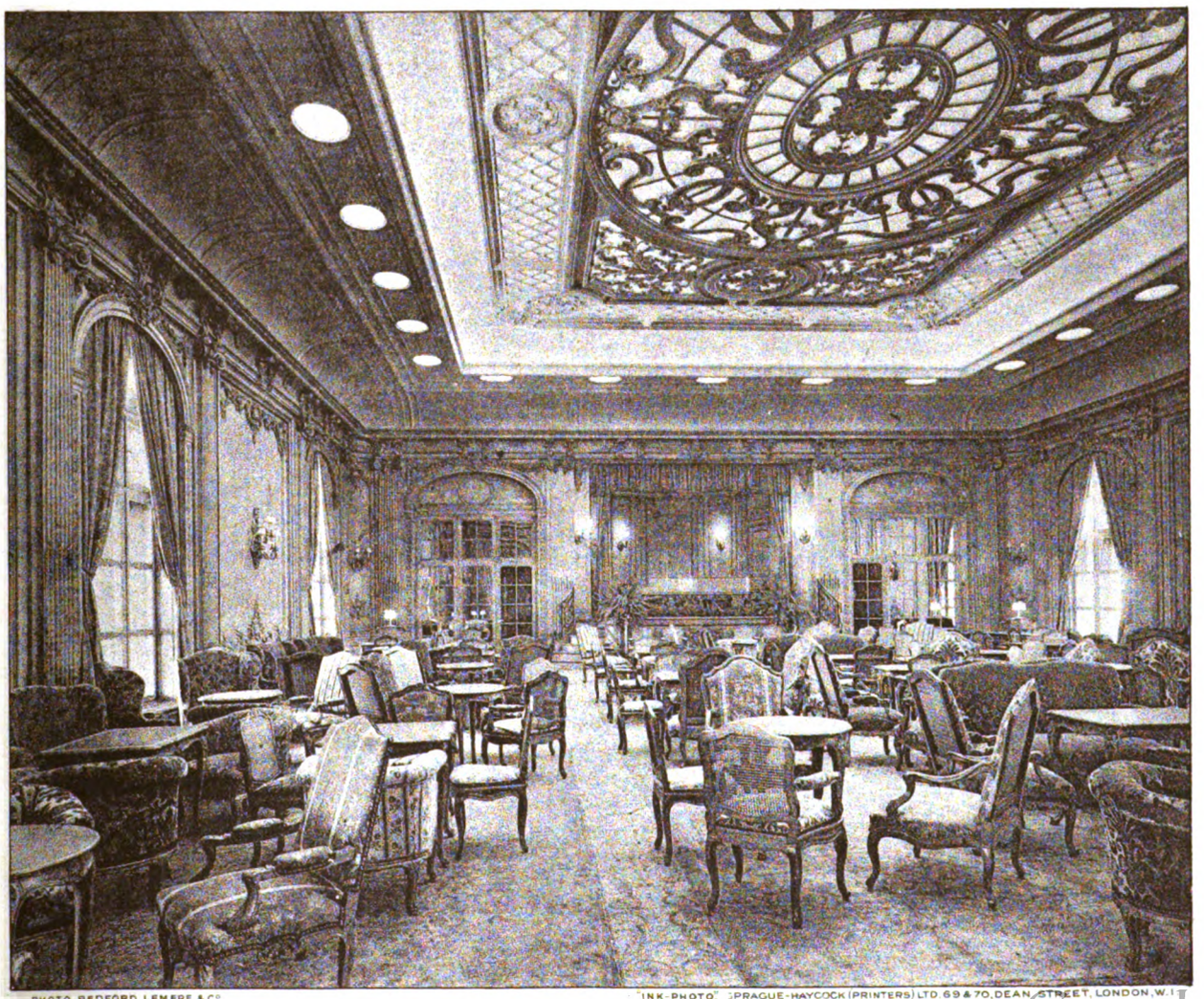


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LOUNGE GENERAL TO STAGE.

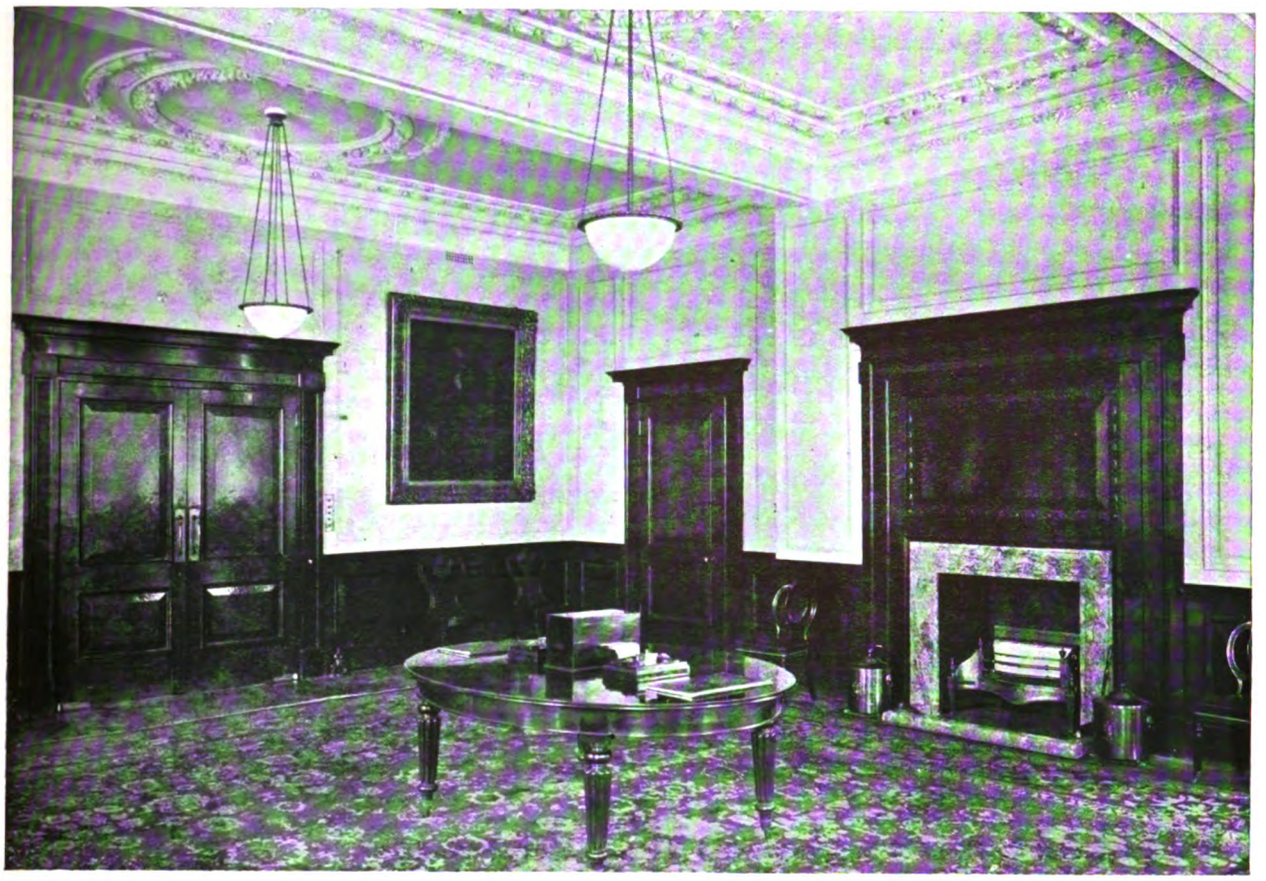
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THE WHITE STAR S.S. MAJESTIC, *vice* BISMARCK.

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BOARD ROOM



MAIN OFFICE.

NEW HEAD OFFICE, LONDON ASSURANCE, KING WILLIAM STREET, E.C.

CAMPBELL JONES, SON & SMITHERS, ARCHITECTS

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DINING ROOM.

STAIRCASE AND GALLERY.

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CAMPBELL JONES, SON, & SMITHERS, ARCHITECTS.

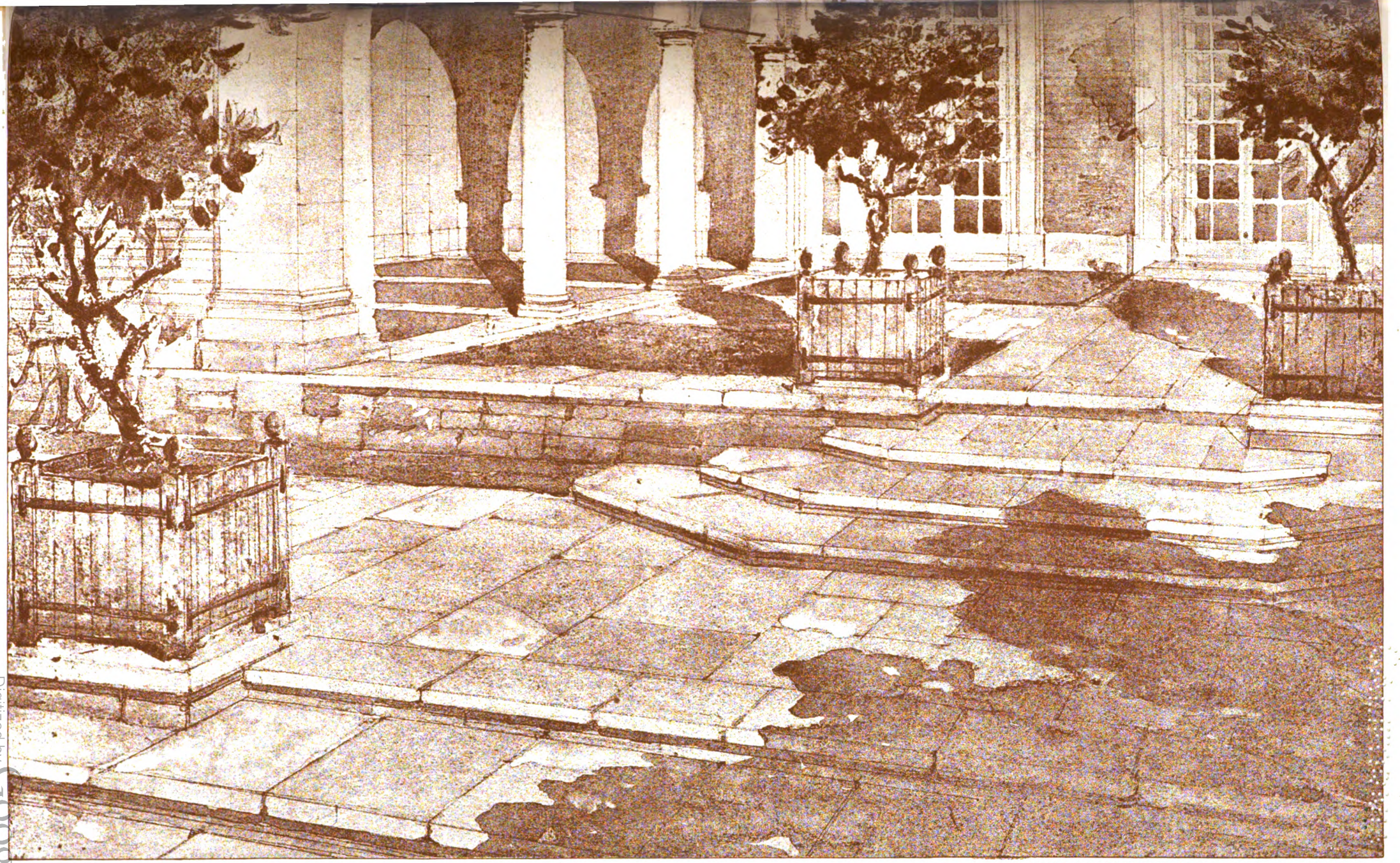
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LOGGIA AT BEVERIDGE PARK, DORSET.

E. GUY DAWBER, ARCHITECT

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The London Assurance Corporation's New Offices.

The London Assurance Corporation can already claim two hundred years of existence since the granting of its original charter in 1720. It has lived and prospered through years of stress and financial panic, and survived the intense strain put on all our financial institutions by the bursting of the South Sea Bubble, which happened only eight months after the Charter of George I. was granted. After that historic event it opened fire and life departments, the profits from which stood it in good stead in difficult times. Since then—happily without the necessity for such drastic "impulses"—has added all the various "commercial" risks (workmen's compensation, plate glass, lifts, fidelity, boilers, &c.), such domestic policies as burglary, motor, householder's comprehensive, &c., and has even embraced agriculture by arranging policies on live stock. And, in addition to two hundred years' continued activity, London Assurance policies are backed by assets of over £9,000,000, and an annual income of more than three million pounds.

The marine underwriting section of this famous Corporation will still remain at the old address—viz., 7 Royal Exchange, E.C., but its ever-increasing business and growing influence has necessitated the erection of the building we illustrate, to which its head office has now been removed. To enter upon a third century of active business life in such a building and in such a position is no mean achievement, and, contrary to the usual custom in matters mundane, the older it grows the more up-to-date it becomes. Its operations extend to all parts of the world, and it practises nearly every known form of insurance.

The new offices have been erected on a freehold triangular site at the western end of King William Street. The building is steel-framed, of fire-proof construction throughout, the staircase and the vaults under the pavements being made of reinforced concrete; the front is Portland stone. There are two basements—the foundations being carried down to the blue clay—lower ground floor, ground floor, and six floors above. The plan is on an axial line with the corner entrance, and the centre of the building gets full advantage of the open area on the south; the main entrance is at the northern corner looking towards the Bank of England and the Royal Exchange.

The design was the outcome of a limited competition, which resulted in the employment of Messrs. Campbell Jones, Son, & Smithers.

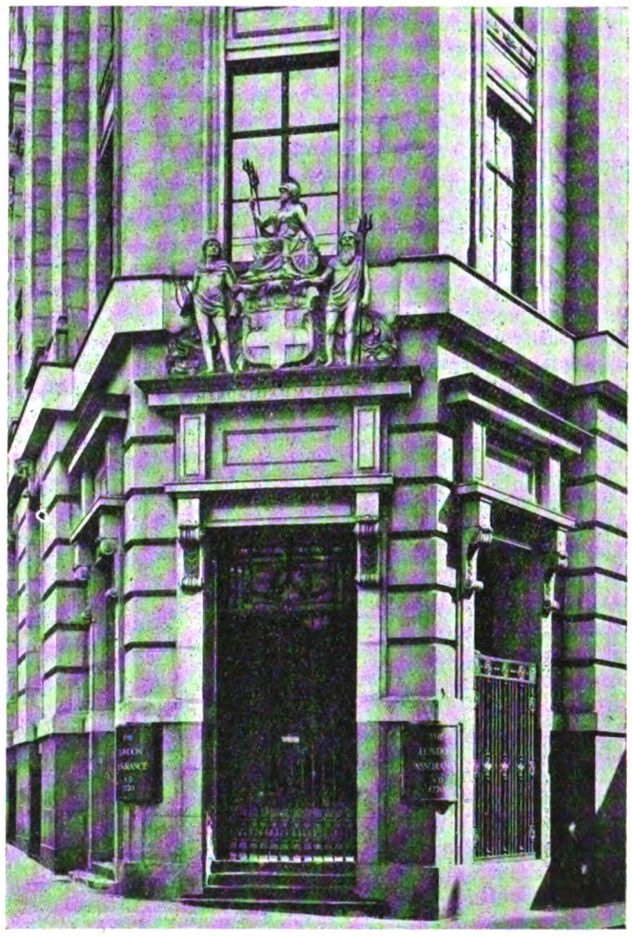
The general contractors were Messrs. Trollope & Colls, Ltd., and the sub-contractors included: Hot-water, heating, and vacuum-cleaning, Wheeler & Sons; lifts, Marryat & Scott; steel framing, Redpath, Brown & Co.; art paving for mosaic floors and wall lining, and marble columns on ground floor, Art Pavements and Decorations, Ltd.; wells and water supply, C. Isler & Co.; electric lighting, Strode & Co., Ltd.; metal work, J. W. Singer & Sons, Ltd., and Ramsay & Co.; safe doors, Ratner Safe Co., Ltd.; metal fittings, Sankey-Sheldon; wood carving, W. Aumonier.

The City, in spite of the immense volume of trade of which it is the centre, has always given an impression of conservatism, and its landmarks until lately have seemed permanent features of our daily life; but it, too, is now in process of rapid change and rebuilding, which in many cases are giving it a new and changed aspect.



THE LONDON ASSURANCE: LOWER GROUND FLOOR.

Great piles of offices rather than its old towers and spires are rapidly giving it a new character and reminding us of the buildings which dominate New York. The rebuilding of the Bank of England and Mansion House, which may be confidently expected within a span of some twenty years from the present time, will complete the new transformation which is taking place in our midst.



THE LONDON ASSURANCE CORPORATION'S NEW BUILDINGS.
THE MAIN ENTRANCE.

Messrs. Campbell Jones, Son, and Smithers, Architect.

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Industrial Council for the Building Industry.

The quarterly meeting of the "Building Trades Parliament" was held on Thursday afternoon and Friday of last week. Mr. James Storrs, chairman, presided.

Except for a brief financial statement by Mr. J. Batchelor, honorary treasurer (which showed that the balance on April 22, 1922, was £774 6s. 7d.), the whole of Thursday afternoon was devoted to the consideration of what action should be taken on the resolution of the National Federation of the Building Trades Employers conveyed in the following letter to the secretary of this Industrial Council:—

[Copy.] May 2, 1922.

Revision of Rules of the Industrial Council.

Dear Sir,—Referring to my letter and notice of December 23 last, my Committee appointed a Sub-Committee to consider the Constitution of the Industrial Council with a view to its revision.

The Sub-Committee submitted a report in January, but when it came before the Administrative Committee the amendments were not deemed sufficiently drastic, and the report was referred back for further consideration. When it came up again before the Administrative Committee the division of opinion was so pronounced that it was not found practicable to come to any decision, and the position was reported to the Executive Council.

The question was considered by the latter at its meeting on April 26, when the following resolution was agreed to:—

"That this Council having received the report of the Administrative Committee on the question of a revision of the rules of the Industrial Council resolves that no revision can possibly meet its views, and instructs the Secretary to inform the Industrial Council that the notice of December 23 last given on behalf of the Federation must take effect."

Yours faithfully,
(Signed) A. G. White,
Secretary.

Mr. Storrs, the Chairman, in his opening remarks relative to the above letter, explained that some of the employers had long been desirous of improving from their point of view the working rules of the Industrial Council for the Building Industry. The matter was discussed at a general meeting of the Employers' Federation, and a sub-committee appointed to draw up fresh regulations. Later, those proposed new rules were submitted to another general meeting of the Federation, but were referred back. It was pointed out that so many organisations had been set up in connection with the building trades, such as the Wages and Conditions Council, and the Demarcation Board, there was a danger of there being too many—especially as they all meant expenditure. Some members wondered whether it was worth while continuing the Industrial Council in view of the existence of these other councils. Another matter which had a considerable influence upon that meeting was the line or attitude taken up by some of the leaders on the operatives' side. Undoubtedly the root idea of the Industrial Council was that it should be a consultative body, and that when matters were brought up before it each side should try to consider it from the other side's point of view as well as from their own. Considerable soreness had been created on the employers' side by speeches from certain of the operative leaders, in which the latter declared they were out to do away with the employers altogether. That attitude was very much resented, and exercised a considerable influence in regard to arriving at the present position. Personally, said Mr. Storrs, he would have liked to have seen the existing rules so amended as to allow of the continuance of such business as was not yet carried through. Perhaps the Government were not altogether free from blame for this failure. The Industrial Council had been created so as to serve as a media for consultation in all trade matters. In actual fact the Government had on several occasions consulted the operatives singly and the employers singly. Why should they have done that after the Council had been set up as the mouthpiece of the trade on both sides?

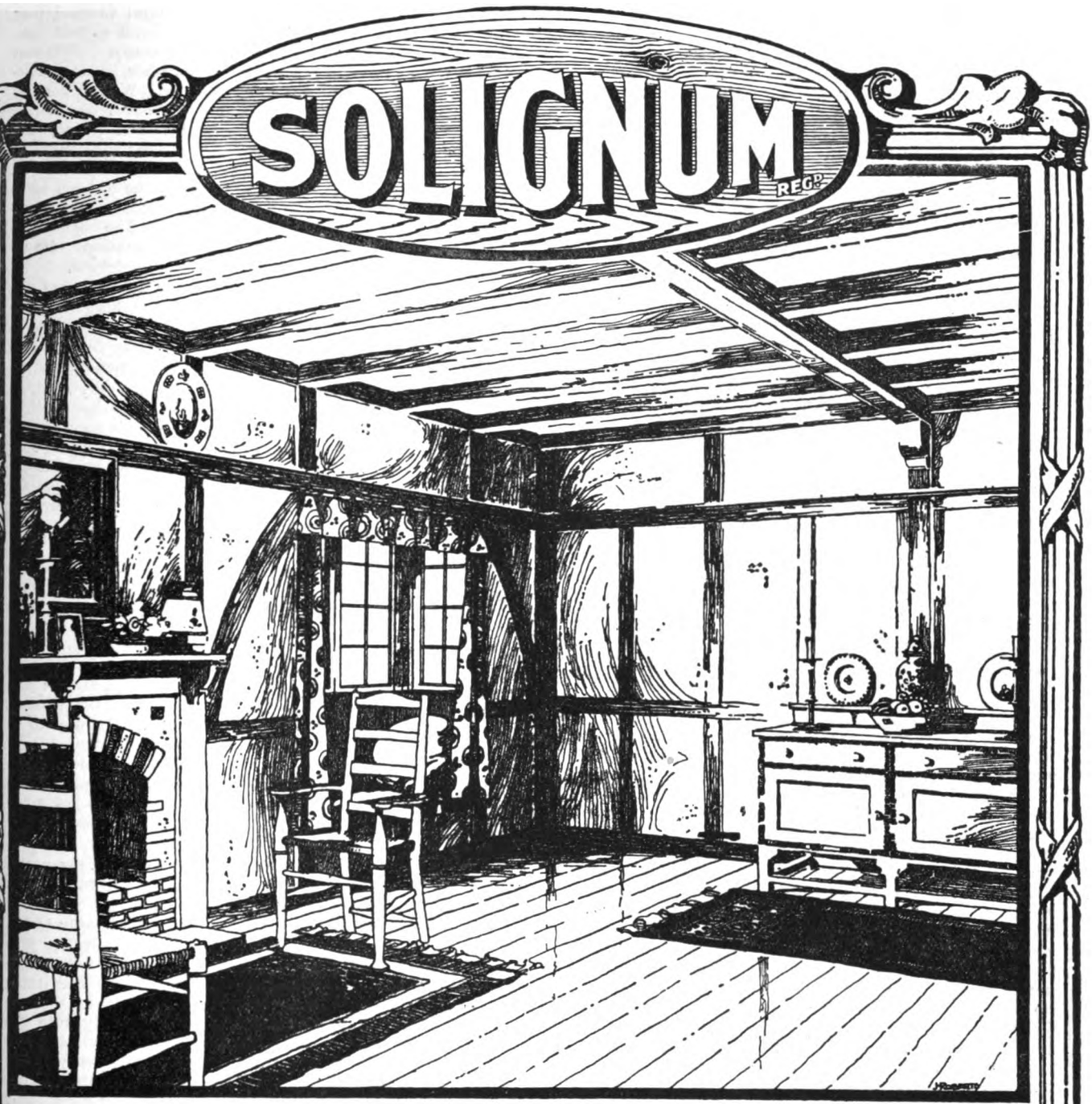
Mr. Thomas Foster (Employers) said there could be no member of the Council but would have serious feelings about the circumstances under which they met. He believed the decision of the Employers' Federation would produce consequences and reactions in other directions which the building trade would have serious cause to regret. He wanted an opportunity for preserving the existence of the Council, as he believed it would be needed in the near future. The Council had been carried on during the formative years at a great expense of time and money. If it had not answered all the expectations made of it, was that to be wondered at? What institution had ever done so? Even the Church, after all these centuries, was a relative failure compared with what had been hoped of it. The Industrial Council was formed under abnormal conditions during the later months of the war, and had been carried on under demoralising influences. These latter did not apply solely to the workmen. There was an orgy of profiteering on all sides. A Council such as theirs was whatever its members made of it. Too many people who pay merely subscriptions expect something to be done for them, and forget that the continuous full co-operation of all is necessary. A great part of the Council's early activities arose out of immediate war problems. Their possibilities of good work were not yet exhausted. In 1918 there had been many generous expressions from employers, but that spirit seemed now to have evaporated. There had been a gradual drifting apart between employers and operatives. One evidence of this was the present resignation of the Employers' Federation. The fine ideal of public service and communal good had not been taken sufficiently into account. Such a condition of things ought not to be permanent. His suggestion was that a year's respite would afford an opportunity of thinking about the matter. The bank balance in hand would probably be adequate to enable them to carry on during that time. If there could be a heart-to-heart talk without recriminations, some good might come from it. He would appeal for that fine feeling and spirit of idealism present in the constitution of the Council. It had been set up to try and cultivate those human relations which must exist in industry. Without a spirit of goodwill this country was lost—"Where there is no vision, the people perish." He asked the Council not to make a fatal mistake by deciding hastily. Believing that time was required for thinking matters over, he moved the following resolution:—

"That in view of the situation created by the resignation of the National Federation of Building Trades Employers, the Council shall be held in a state of suspense for one year as from the end of June next, and that the Administrative Committee, as now constituted, be kept in being for the same period, to be called together if occasion requires to deal with eventualities that may arise; further, that a conference between the Administrative Committee of the Industrial Council and the Administrative Committee of the Employers' Federation be sought, with a view to seeing if it is not possible for the Building Trades Employers' Federation again to take its place as a constituent part of the Council."

The above motion was seconded by Mr. F. Kennedy (operatives).

Mr. R. B. Chessum (Employers) said he felt unable to support the proposed resolution. The experience many of them had gained was such that to support it and to endeavour to create something out of that which at the present time existed would be to support a predoomed failure. His own belief was that a closer contact must be for the permanent benefit of the building industry. But he had learnt from life that when a person had been associated with any contaminating influence it was best to cut the canker out and start *de novo*. That was the lesson to be taken to heart—to try and build up from the ashes after their purging by the fire of experience. He could not support the idea that the Industrial Council should exist even in a state of suspense as speaking for the industry when a not inconsiderable portion of that industry was not represented. The efforts of the Council had been in a wrong direction. Personally he yielded to nobody in a desire to see the operatives enjoy the fullest measure of consideration, justice, and generosity that was possible. But the Council had been dragged along at the heels of a fetish. Unless ideals are brought within the bounds of practical politics, their promoters but dream of the moon while missing the sunlight of the day. Life was one long strife, whereas the tendency had rather been to sap the personality of the individual and to spoon-feed everybody with whatever they wanted. The original ideal of the Industrial Council was a good one, but, in practice, functions had been appropriated which never belonged to it. The sooner the Council was placed in its proper position, the better for the industry. There had, for

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instance, been occasions when matters of procedure were entirely out of order, and when the Council had been pledged by its subordinate committees. In all the workers' propaganda, spread broadcast throughout the country, one policy had been left out—and that was the gospel of the dignity of work, the solace for all troubles and recompense for all efforts. If that gospel was accepted he would inquire what justice there could be in saying the individual should not possess the merit that was due to him. He had yet to learn there was anything in that which conflicted with the first ideals of the Council. Nor could he agree with Mr. Foster's assertion that there were signs on every hand of the drifting apart of employers and operatives. Rather he would say that as an industry they had cause for an amount of self-satisfaction that in these days of reduction of wages there should be such amicable and cordial relationships between the leaders on both sides. It was a slur to say there was a drifting apart. He had never seen such spirit equalled or such a measure of success in the solution of difficult problems. He would like a new Council to arise, phœnix-like, out of the ashes of the old.

Mr. T. Barron (vice-chairman) said that as an operative he was not prepared to support the resolution after the statement that the employers were not going to have anything to do with it. The operatives were willing and anxious to see some equal platform where they could discuss matters. It was not a question of the employers dealing generously with the operatives, it was now a question of equality. The sooner that fact was realised the better. The parties could still go on as employers and operatives, but both would have an equal control and management of the industry. He felt surprised at the other side taking exception to some talk about doing away with employers. Both sides were to blame for the present failure of the Industrial Council for the Building Trades. Four years ago there had been some wonderful speeches at its opening meeting. Probably many of the operatives entered it simply with a view to getting material advantage. The same spirit animated many of the employers. The Councils were in too big a hurry. Their meetings eventually came to be a question of bargaining. Too many questions had been dealt with and nothing accomplished. Some were not a matter for discord. One was the education of the workers, and another was their safety and welfare. There seemed nothing in either of those to divide the two parties, yet divided they were. It was amazing to find the number of serious questions that arose year after year. Whatever might happen in the future some of those things would have to be gone into. Personally he felt no regret at having attended for four years the deliberations of the Council. Such a Council was a very good education, because its members were brought into real touch with people of a different point of view, and so they might be able to arrive at useful conclusions. He did not think it would do the least bit of good for the operatives to continue the Council after the employers had left it. At least, it could be claimed that the operatives had taken the lead in initiating the movement, and were willing to carry on. The two parties were retiring with clean hands and pure hearts.

Mr. W. G. Sutherland (Employers) thought it was possible the corpse might refuse to be buried. In his opinion the future of the Council ought to be discussed by both parties at the first convenient opportunity.

Mr. W. Pickles (Operatives) said that perhaps the employers would find out after they had left the Council that it was possible to carry on the industry without them. Some present believed the old order was passing. The workers would not remain permanently satisfied with conditions as they were at the present time. Mr. Chessum had spoken of the dignity of work. But the operatives worked with an object in view, and there might be no dignity whatever in performing a task if that object was removed. The operatives had learnt the value of collective bargaining, and were progressing rapidly towards it.

Mr. Chessum said he never wanted to destroy collective bargaining by the operatives. The employers had no wish to coerce the other sections. If the Council carried on after the employers had seceded from it they could no longer speak as representing the industry. It was impossible for a few employers in a branch trade with the whole of the operatives to speak for their great industry as a whole. The day had not yet arrived when the Federation of Building Trade Employers had ceased to exist. And the day was far distant when it would be possible to do without the definite relations of employers and employed. But there existed no reason why they should not work in the closest harmony for the general weal.

Mr. Coppack (Operatives) warned the meeting that if they discontinued bodies like the Industrial Council they would develop in this country the same forces as had been developed in Belgium, France, and Germany. Without opportunities for both sides meeting together, there inevitably arose a feeling of mutual suspicion. Was it possible to form another organisation out of the ashes of the old, or to re-organise the present one? But such re-organisation must be from within. He was convinced that industry must deal with industry in the future. They were all proud of the progress already made. Personally, he did not agree with the suggestion that it would be possible to hold the committee in suspense for twelve months. The operatives regretted the demise of the present organisation, because they looked upon it as a common ground for debate.

Mr. R. Rowell (Employers) expressed a wish that the objections which had led to the employers taking up their present position should be tabled. He himself was quite in the dark concerning them. Any discussion to be of value must take place in the presence of the component parts.

Mr. S. Stranks (Operatives) declared it was very far from creditable to the Employers' Federation if they retired merely because some of the operatives had made proposals of which they did not approve. Such a withdrawal would only build up a body of opinion inimical to ordered government. It was not possible to stop the development of the organised mind, but they could hasten it by adopting an arrogant attitude.

Mr. W. Moffat (Employers) doubted if it was quite realised how much care and trouble the Employers' Federation had taken before coming to their decision. The mistake of the Industrial Council had been in failing to keep to its constitution.

Mr. R. Wilson (Operatives) said he wanted to see the Council continue as at present constituted. But the interests were too divergent. In the course of time the builders will be compelled to have another general council, for without one there would be tremendous difficulties. It was to be hoped such council would not be at the mercy of ideals. The faults of the present failure lay equally between both sides. They had done well inasmuch as there had been no open rupture. Perhaps in the future they might get something better adapted to requirements. Mr. Foster's resolution would not get them out of the difficulty.

Mr. F. Kennedy (Operatives) asked if the thirty years' work embodied in the Safety and Welfare Committee was to be wrecked?

Mr. Thos. Foster, in the course of a general reply to the points raised, said the employers had failed to realise that conditions are changing. The growth of ideas among the working-classes could not be stopped. What must inevitably take place if there is no opportunity for both sides discussing them will be that control will pass entirely into the hands of the extremists. If the employers consented to learn by other people's experience, they would seek to co-operate and make the best of things. He regretted the Federation had not submitted their minutes. To have taken this extreme attitude without trying to find a solution was short-sighted. For the employers the old principle of *noblesse oblige* would have been the best. Personally he could not see how a new council could be formed out of the ashes of the old when these ashes had been swept away. Any new council will have to cope with the new ways of thought.

At the suggestion of the chairman, Mr. Foster and his seconder withdrew their motion.

Friday Morning.

The proceedings on the second day included the discussion of reports by the Education Committee and the Safety and Welfare Committee. In view of the withdrawal in June of the National Federation of Employers there was an inevitable air of futility over the whole. It was ultimately agreed that the Administrative Committee should try and take steps to enable the work of both Committees to be continued. As their most important work is in conducting negotiations with the Government authorities, it is impossible to foretell how far it can continue. As a typical instance one may mention a letter from the Home Office, which was read at the meeting, and which invited the Industrial Council to appoint representatives to confer with the Chief Inspector of Factories on the subject of the large number of objections raised to the proposed Regulations for Buildings in Course of Construction.

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The Architectural Association.

An ordinary general meeting was held on Monday last, May 22nd inst., at 34-35 Bedford Square, W.C. Mr. W. G. Newton, M.A., president, was in the chair.

Three nominations for membership were announced and five new members were elected.

The following nominations by the Council for House List for Session 1922-23 were announced:—

President.—Stanley Hamp, F.R.I.B.A.

Vice-Presidents.—L. S. Sullivan, A.R.I.B.A., and Gilbert H. Jenkins, L.R.I.B.A.

Hon. Treasurer.—E. Stanley Hall, M.A., F.R.I.B.A.

Hon. Editor.—M. T. Waterhouse, M.C., A.R.I.B.A.

Hon. Librarian.—Manning Robertson, A.R.I.B.A.

Hon. Secretary.—J. Alan Slater, M.A., A.R.I.B.A.

ORDINARY MEMBERS OF COUNCIL.

Past President.—W. G. Newton, M.A., M.C., A.R.I.B.A.

Major H. Barnes, M.P., F.R.I.B.A.; T. A. Darcy, Braddell, A.R.I.B.A.; M. J. Dawson, F.R.I.B.A.; F. C. Eden, M.A.; G. P. Fildes, A.R.I.B.A.; H. S. Goodhart-Rendel; P. D. Hepworth, A.R.I.B.A.; Oliver Hill; E. J. T. Lutyens, A.R.I.B.A.; H. I. Merriman, A.R.I.B.A.; A. H. Moberley, F.R.I.B.A.; S. C. Ramsey, F.R.I.B.A.; A. B. Ll. Roberts, A.R.I.B.A.; H. A. Saul, F.R.I.B.A.; T. S. Tait, A.R.I.B.A.; M. J. Tapper, A.R.I.B.A; Philip Tilden; C. C. Voysey, A.R.I.B.A.; T. M. Wilson, F.R.I.B.A.; G. G. Wornum, A.R.I.B.A.

Messrs. J. K. Parker and C. G. Dixon were appointed scrutineers for the above ballot. The result will be announced at a special general meeting to be held on Monday, May 29.

The principal business of the meeting, for which an unusually large audience had gathered, was an address by Mr. Hilaire Belloc on the subject of

THE PROBABLE EFFECT ON ARCHITECTURE OF THE DECLINE IN OUR CIVILISATION.

Mr. Belloc in a short introduction said that when a "literary gent" talks on a technical matter he was not competent to talk about the technical side of it. In the present instance his only right to speak at all to a technical society was with a view to suggesting a few general principles coming from the historical side of the subject. An expert in the history of architecture would doubtless give a more detailed and valuable argument than he was able to do. His only endeavour would be to put forward a few guiding lines for consideration. In talking of the future one was always wrong in proportion to the extent of things that afterwards come in and deflect one's prognostications. One can only discuss the probable result arising out of causes before one's eyes.

For the purposes of his argument he was assuming that civilisation was either declining now or must begin to decline sometime in the near future: it did not matter which because in either case the effect upon architecture would be the same. He happened to think, however, that the decline had not only begun, but was even somewhat advanced. Anybody swayed by what is called the economic interpretation of history would not agree we were in a decline. Our powers of material production were undoubtedly greater than before the war—and partly because of the war. Our scientific aptitude to deal with the world about us, with the material things, was also greater than ever. But the decline which he was thinking of began with things spiritual, and those should come before the material side. Such decline took place not because of poverty but through a change in the mind that was somewhat analogous to physical fatigue. The organism of the healthy human body judges instinctively what is best for it. Decline was marked by a gradual loss of that power. Similarly when the organism of society instinctively loses the power of knowing what is best for it in its immediate environment, then its ultimate survival is threatened. One sure sign would be the choice of the best men for its work. A sign of decay is when you get the wrong men chosen for the wrong jobs. That symptom seemed to be increasing at the present time at an immense rapidity. No one nowadays who met a man greatly talked about could help thinking what a complete fool he seemed. The same thing was happening in varying degrees all over Europe. But it was more marked in this country than anywhere else.

The material evidence of decline might not show till long after the spiritual decline had begun. What would be the effect of decline should it come? In his reading he had been interested in speculating upon the possible effect on architecture. There was one great example—viz., between 280 and 1000—when occurred the long decline of the Roman Empire into the Dark Ages. On that period there existed an immense mass of direct evidence. It would be wrong to take too exact an analogy. Even more valuable as a guide were the *a-priori* considerations. What was likely to happen? When the mind was beginning to get weak and the soul of society fatigued, the architecture would not be hit first in the use of materials—that symptom would come later. Certainly not in its learning—that would come long after. The nerve goes before the power of appreciation. The first thing to go, spiritually, would be the sense of proportion. It was not quite true to say we do not know what is beautiful. The creative power to produce the beautiful, and the strong instinct to reject the ugly, was the first and biggest thing to go. As a consequence any attempt to achieve effects, whether of magnificence, size, cosiness, or anything else, become, *fourchée*: the results get a little to one side. This was very different to what can be seen at Beauvais Cathedral, or at the Italian town of Loretto, where bastions not more than 50 ft. high produce an amazing impression. If one compared Liverpool Cathedral with either of those one had to admit there was not the same effect—unless perhaps in a fog. A somewhat similar comparison might be made between the domestic architecture of Holland and the opera bouffe houses built in this country for the very rich. In the latter something has gone wrong, and the effect aimed at is missed. Or take a small detail. He hardly knew of any modern-made mullions which preserve a proportion which satisfy the eye. The loss of the satisfaction given by proportion was the first great symptom of decline.

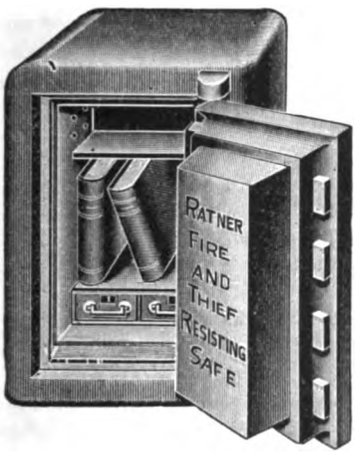
The second phase would reveal itself in reliance upon convention and to say, "We have lost the arts and opportunity to prosecute the arts." Then one gets repeated over and over again exactly the same form. Civilisation may decline so low as to fall into a barbarism like what can be seen at Irak. Such convention may govern for centuries after the period of forgetfulness has set in. As a rule the work done in this stage is better than the grandiose attempts at the beginning of the decline.

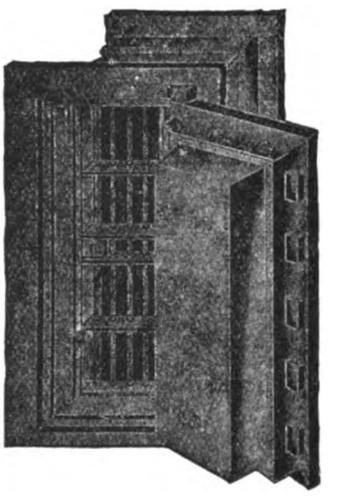
Here we might ask ourselves what will happen to our architecture: in the first place, as to its sense of proportion, and secondly as to the use of material. Dealing first with the spiritual side he would suggest we shall have a great exaggeration in scale. It appeared to him that the easiest way out for a people who cannot produce an effect through proportion was to produce it through mere size. There would be a tendency to exaggeration in scale, or to seek that excess in size so terribly exemplified in the "Kolossal" achievements of the Prussian. The power of the Kolossal could be a hellish thing. Next would come the stage of the frankly ugly—adopted merely because it startles. An illustration of this was to be seen in recent amazing German work at Metz, which was such that one could hardly conceive the human race producing it. One instance was a modern porch at the cathedral, which included figures of the four Prophets—the figure of Daniel was the exact replica of the Emperor William! An occurrence of that sort showed a loss of hold on reality.

The next stage of decline will be a reaction upon material. In this connection a very interesting problem

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arose. What will a declining society do with the materials that civilisation has got hold of? Our present civilisation is marked by its conquest of iron and concrete. The Roman civilisation was marked by the arch and by concrete, as was to be seen in the huge Basilica of Constantine in the Forum. The Romans during their period of decline kept the arch, but lost the art of making the concrete. The latter was due to the fact that the making of concrete in great masses means exactitude and a supply of disciplined servile labour, as well as the moving of the material over great spaces. Something of the same sort was true to-day of our reinforced concrete work. With the decline we shall not revert to the earlier materials, but continue to use the modern thing—though worse done and on a smaller scale. The prospect was a gloomy one. Fortunately we of this generation will have long been dead. Men will be manufacturing girders of poorer quality, the spans will be smaller. In the decline of the Roman Empire what persisted was the house built for profit, the tall house of many storeys erected by capitalists, from about the time of Nero. Even in the Dark Ages they continued to try to build tall houses as best they could. He would suggest that the architecture of our decline will not be the imitation by the smaller house of the bigger, but the architecture of the big flat and colossal hotel. In the London of three or four hundred years hence houses will be much diminished in number, and built very badly. As to what effect that might have on shapes he would not venture to foretell. Probably they will finally go back to the simplest forms, that is, two uprights with something across them to support the floors.

Discussion.

Mr. Philip Tilden, in proposing the vote of thanks, said the audience must suspect Mr. Belloc of being something more than the layman he professed to be. But he did venture to differ from much which had been just said. The present-day public, and the people architects build for, knew a tremendous lot, and their feelings are tremendously strong. That fact should cheer the audience up a little. He would admit that at the time of the Victorian prosperity, which synchronised with the introduction of new materials like steel, this country might have lost its sense of proportion, and, running riot, to have been a little inclined to get off the rails. But his own belief was that we had now got to the stage when we shall steady down and produce something worth living in. Clients long for good proportion, and architects must give it. Building in proportion will help to stabilise things. The Press in the past had not helped architects enough to air their views, but he thought the Press would do so in the future. Anyway, architecture was a big enough thing to look after itself. During the decline of Rome everything ran to richness. Selfridge's building was perhaps our nearest approach to the colossal: but a great many architects considered it rather fine. (Mr. Hilaire Belloc: "I agree." Spain was simultaneously putting up magnificent banks and the most hideous cathedral conceived by the mind of man. If Mr. Belloc only helped the profession to feel a little more strongly he would have done a tremendous service.

Mr. H. B. Cresswell said the paper had convinced him that architects were too liable merely to simmer among themselves, and failed to learn the opinions of men who could view things from the wider point of view. In his opinion the books on architecture best worth reading have not been by architects at all, but by men like Lord Grimthorpe (whose essays, though full of error, were most illuminating, and Mr. March Phillips. Then there was John Ruskin, who wrote his great "Poetry in Architecture" when he was nineteen. Mr. Belloc was a man of most extraordinary versatility, whose mind ranged over a vast number of subjects. Personally, he believed Mr. Belloc to be entirely right. The danger of decline lay not in material difficulties, but in spiritual ones. The indication of it lay in the insincerities which surround us, and which spring from the material aspects of society. Everything in contemporary life has been reduced to a material standard. Pretentiousness was what was wanted from architects. If the use of reinforced concrete becomes an economic necessity a new system or style must arise which would lead to a decline in architecture as we now understand it. The decay in the crafts has already advanced to a point when they require to be fanned into life again. In this latter respect we can help by going to men who work individually, or can personally control the work entrusted to them.

Mr. R. A. Duncan suggested that the threatened downfall of civilisation might be warded off by the spiritual attitude of the nation. He could see no reason why a complete right-about-face should not take place. There were many signs of it and there was a general hankering for a lead in that respect.

Mr. Manning Robertson enquired as to whether there was a chance of starting a real public interest in architecture. That was what was wanted. The Victorian house had been produced because the public liked it. An intelligent public interest was needed. To obtain that one must go outside the profession and to the educated public.

Mr. W. A. Devereux claimed that the student, so far from admitting contemporary architecture was in its decay, considered it to be in the first flush of youth. Growth consisted of a series of jerks with occasional relapses. Was not the threatened decline a mere short relapse in the history of the human race.

Mr. T. L. Dale thought the answer to the cry "Are we downhearted?" should be an emphatic "No!" It was the latter spirit that actuated the A.A. He agreed with the remark that the best books on architecture were not always written by architects. The most vital book he had read was Professor Butcher's "Some Aspects of the Greek Genius": though there was not a word about architecture in it yet it taught one the very essence of Greek art.

Hon. H. Pakington thought there was no use in trying to get the public interested in architecture until there had been spiritual revival. Gothic had been the fruit of an intense religious conviction.

Mr. G. D. G. Hake thought this country stood now in a position which corresponded to that of Rome when she discovered her brick arch and concrete; that is to say we were just at the beginning of reinforced concrete.

Mr. W. J. Allcorn contended we were about to develop. The motor car, for instance, was making us have huge roads all over the country. The Americans had put up some colossal buildings which caused one to look at them with awe and reverence.

Mr. A. H. Moberly regretted that architects seemed extraordinarily content to get together and tell one another what they think about Mr. So-and-So's work. His experience was that people without technical instruction had extremely little idea as to what architects were driving at in their work and why a certain design was good or bad. Yet at the same time architects could learn a great deal from laymen.

Mr. Gilbert Jenkins wondered whether Mr. Belloc considered civilisation was really on the downgrade or merely in one of those troughs which have occurred from time to time in the world's history.

Mr. W. G. Newton, in putting the vote of thanks, said the profession would doubtless like to know whether Mr Belloc thought our architecture was at present showing signs of decline, and secondly whether anything architects did might affect the civilisation of our country. Can architecture help or can it only be an effect?

Mr. Hilaire Belloc, in the course of his reply, said his personal opinion was that the architecture of this country was at the moment having a spurt. But he did not believe it will go on. The architecure of modern England was better than that of any other European country. Our Gothic buildings and our experiments were better. But they were only experiments. Speaking quite bluntly he would say that in his opinion there was already at the moment an actual decline in our

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civilisation. Could the artist react to that? His answer was that he could do so. But architecture was an effect and not a cause of civilisation. The reaction of beauty on the soul would not be sufficiently powerful to arrest a decline. Beauty will not save Society. One of the most important proofs of decline, as he had already stated, was that to-day power had been placed in this and other countries into the wrong hands. Society saw things distorted. It was necessary to face reality. His own conviction was that men achieve their best work in moments of difficulty; when the individual believes he is down and out. The present reality was that our civilisation was going down. It certainly might recover. To end on a serious note he would say we were all sons of God and that nobody knew what was coming. By each striving to do what we think is good a current is created. It was the energy of the individual mind that reacts on the world. It was infinitely more valuable to the individual to do his work to the utmost of his ability than to produce theories. Let no one do a thing that he knows to be scamped or according to the ideas of another if he thinks those ideas to be false.

General.

The Westminster Palace Hotel is to be converted into suites of offices with shops on the ground floor. It changed hands last year for a figure said to approach £500,000.

The application of the British Petroleum Company, Ltd., to erect works near the Old Dock, Newport, to store 60,000 tons of petroleum, has been granted by the Watch Committee, subject to certain regulations being carried out.

Bentley Urban Council have provisionally accepted the tender of Messrs. T. H. Wilburn (Doncaster) for the erection of eighteen houses at £352 10s. per house, or twelve at that price and six of a bigger type at £375. It is hoped to induce the Ministry of Health to sanction the provision of more dwellings.

It was reported to the Birmingham Housing and Estates Committee last week that "B" certificates covering 614 houses had been issued in the city. That number of houses has been completed under the subsidy scheme by private builders. The average amount of the State grant per house is £250.

Birmingham City Council have authorised that estimates be obtained for an extension of their meat market by increasing the lairage and slaughter-house accommodation. The necessary land has already been acquired. A scheme for adapting and equipping the Sparkhill Council House as a branch library at a cost of £3,920 has also been approved.

The Colwyn Bay Council have instructed a committee to formulate a scheme for the erection of municipal buildings on the site of the present Council Offices in Conway Road, which was acquired for the purpose, and on the adjoining property. The desirability of obtaining plans by open competition is to be considered.

A scheme has been approved in principle by the Establishment Committee of the London County Council for erecting at the New County Hall a memorial to the members and ex-members of the Council and members of the staff who fell in the Great War. The question of the design is under consideration.

The Hamilton Town Council have formally passed a resolution to proceed with the erection of a new Town Hall on a site adjoining the Municipal Buildings in Cadzow Street, in accordance with plans prepared by Messrs. Cullen, Lochhead & Brown, architects. The Council were left £25,000 for the purpose.

A site has been purchased adjoining Jesus College, Cambridge, for the proposed college for Wesleyan Ministerial students. It is proposed for a time to confine the provision to the requirements of twenty students. But the site will easily allow of the expansion of the accommodation to the needs of fifty men, which is the limit of the ultimate requirements when Methodist Union is brought about. The outlay on site and new buildings will be £48,000, and as by the conditions of the gifts £40,000 must be set aside for endowment purposes, it will be necessary to raise another £22,000 to complete the project.

At the annual meeting of the Liverpool Architecture Society Mr. Gilbert W. Fraser was re-elected President for another year. Mr. T. T. Rees, in proposing thanks to Mr. Fraser, said that the Society was one of the most active in the country, and the past session was one of the best for many years. The Vice-Presidents (Professor L. P. Abercrombie and Mr. W. Glen Dobie) and the Hon. Secretaries (Messrs. Ernest Gee and Felix Holt) were also re-elected. As ordinary members of Council the following were elected: Fellows—Messrs. G. Hastwell Grayson, E. P. Hinde, Richard Holt, Edmund B. Kirby, T. T. Rees, Professor C. H. Reilly, and Arnold Thornely; and as Associates Messrs. E. L. Bower and H. A. Dodd.

The Bournemouth and District Builders' Guild have presented to the Town Council two houses. They are the first Guild in the country to do this. The Guild, it seems, tendered for the erection of houses for the Bournemouth Corporation. One of the rules is that the Guild return 40 per cent. of the profits to the customer, which in this case was the Corporation. Instead of handing over the money, they have given two houses. The Guild have closed this year with a disposable balance of £3,815 13s. 3d., after meeting all expenses. They have paid the recognised rate of wages, including "wet" time. The balance is disposed of as follows: Interest on share capital, 5 per cent.; to reserve fund, 7½ per cent.; to education fund, 2½ per cent.; to social fund, 2½ per cent.; to share redemption fund, 2½ per cent.; 40 per cent. carried forward, and 40 per cent. returned to customers.

It was reported at the last meeting of the Hull Corporation Property Committee that the Town Clerk had interviewed Mr. J. W. Simpson, F.R.I.B.A., London, the assessor in connection with the building of the new Art Gallery, and obtained a rough estimate as to the cost of a two-storey building in the City Square. The Rt. Hon. T. R. Ferens a few years ago ascertained that the total cost of the Bristol Art Gallery (exclusive of site and architects' fees) amounted to £36,000, and it was on this figure that he based his gift of £35,000 for the erection of an art gallery in Hull. He was, however, anxious that the ratepayers should not be put to any expense, and was prepared to give a further £10,000. At the same meeting it was reported that the original amount given by Mr. Ferens (£35,371 13s. 1d.), the value of 19,262 £1 shares in Reckitt's, had increased to £49,305 0s. 3d. The Committee, therefore, resolved to inform Mr. Simpson that the sum available would not be more than £60,000, and to inquire what his fee would be. It was also decided to instruct the City Architect to ascertain the nature of the ground as a foundation for the building.

Mr. Munro, Secretary for Scotland, made the following statement in the House of Commons on the 19th inst.: The total number of unemployed workers in the building trades in Scotland was 10,121 at April 24, 1922, the latest date for which figures are available. I have no information about the cost of house building in 1910, but the average costs under State-assisted housing schemes during 1919, 1920, and 1921 were as follow:—

	1919	1920	1921
3-apartment flats	£700	£900	£850
3-apartment cottages	750	950	950
4-apartment cottages	800	1,050	1,000
5-apartment cottages	850	1,250	1,150

The Scottish Board of Health have not had a sufficient number of recent tenders to enable an adequate comparison to be drawn with these figures, but tenders submitted last month by the Town Council of Glasgow give some for the four types of houses specified—£504, £612, £634, and £698 respectively. I hope that, if the present tendency of costs of labour and materials to fall continues, private enterprise will be induced to resume house-building.

Many of his professional friends will be interested to hear that on June 2 next Mr. Charles Henry Heathcote, F.R.I.B.A., of Manchester, will have completed a term of fifty years spent in active architectural practice in his native city. Born in 1850, Mr. Heathcote served his articles with a well-known West of England architect, the late Charles Hansom, of Bristol and Clifton, and whilst still in his pupilage was awarded, in 1869, the R.I.B.A. silver medal for the best set of architectural drawings from measurements illustrative of English church architecture. Returning to Manchester in 1871, Mr. Heathcote commenced practice there in the following year. During the course of his long professional career Mr. Heathcote has designed and superintended the erection of numerous important commercial and other buildings, including banks and insurance offices for the following: Lloyds Bank, London County Westminster and Parr's Bank, Lancashire and Yorkshire Bank, National Provincial Bank, Commercial Union Insurance Co., Alliance Insurance Co., Scottish Amicable, Norwich Union, Employers' Liability, Vulcan, Economic, Eagle, the Royal London Friendly, and many others.

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The Destruction of England.

MUCH as we dislike departmental and governmental interference with the freedom of individual action, we feel that those who have been agitating for an extension of town-planning legislation to country districts have a complete case made out for them and written out in large and clear lettering over the whole face of the country. The unsightliness of the suburbs of our great towns has for many years been admitted, but, after all, that unsightliness has its limitations of area, because even the sum of the areas of closely built areas is small in proportion to the acreage of England. And, again, we feel that in towns which are unsightly and dirty there is a certain attraction given by the concentrated activity which prevails in their midst. This attraction is absent from the huge districts which cover the country in which groups of shoddily built and ill-placed buildings defile the most beautiful situations and render them one after another absolutely unattractive. Each man builds for his own convenience, without thought of his neighbours, and this haphazard development usually after a time stops the real and orderly development which would take place had a considered plan and lay-out regulated by wise restrictions been adopted.

All along our shores are signs of population in building often of a shoddier and more temporary character than that of inland districts, resembling the outfall of a great sewer of tastelessness, which serves to display the absence of a sense of beauty on the part of the average man. Nothing but the immediate planning and laying-out of districts which contain anything beyond a purely rural population can arrest the process which during the next fifty years will convert England into a land which all in search of beauty will leave when they can to wander over unspoilt districts of Europe, or even other continents. But while we should welcome regulations applied to the whole country which would resemble those in force on first-class building estates, we maintain that this is quite feasible without diminishing the opportunity of any man to make speculation in land and building remunerative. It is true that a man acquiring a few acres in some country districts would be debarred from cutting it into narrow strips for small shops or closely built houses similar to those found in the suburbs of a big town, but these ventures generally end in the erection of a few buildings which are found to be unattractive and which prevent the development of land acquired for that purpose.

In other words, we should not be checking speculation, but in many cases making it ultimately more profitable as a whole. The ordinary small speculator in building resembles a man who gives a dinner the first few courses of which are well cooked and appetising and thinks he can then complete the menu by adding cheap and damaged tinned foods bought at a bargain. In other words, he takes no thought of the morrow or what his back lots will become. He then, having lost the little money he has made on front lots, sells the back land—frequently at a loss—and goes elsewhere; and it is this method of speculation which should be prevented by legislation. Were this done, we believe that building enterprise would become a safer field for investment than it often is now, and that there is no real reason why a greatly increased population should not live in the country consistently with the preservation and even increase of its beauty. Our old villages show this to be possible, for frequently a large population is confined within a comparatively small area without detriment to anyone, while the great spaces between villages secure the closely built-over areas all the advantages of country life.

A space of fifty or sixty acres closely built over surrounded by some thousands of acres of country is infinitely more pleasing than the same area covered with small dwellings pitched irregularly over an area too great to be fully utilised. It is at present natural that a man should wish to build a house out of sight of any other, but only because, as things are now, he can never be certain that his neighbour will not build the worst thing imaginable in the worst position. As far as building goes, the community might do better than it does were its individual members blindfolded before they selected sites for their buildings. The result is perhaps natural, because while few people know anything about building, fewer still have the imagination which is even more necessary in the case of the laying out of land and sites. It is possible that our forefathers who left us the old English villages might have made similar mistakes, but fortunately conditions of life and the need for security led to the adoption of closely arranged groups of buildings side by side and with that closer relation a sense of grouping and effect followed. Each village was in addition the result of the work of a generation of local craftsmen probably quite without conscious ideals, but nevertheless actuated by traditions they were accustomed to. We cannot if we would re-create the past, but we can probably, at least to some reasonable extent, safeguard the future, and we should not in our anxiety to carry out our towns on better lines forget the very much greater and in some ways more complicated conditions which apply to the development of the country which lies between them.

Such an aim as that we propose should appeal to all of professed democratic sympathies, for many who visit such a district as St. George's Hill go away reflecting that the wealthy look after themselves, leaving the husks for others. The skill of Mr. Tarrant does not so much consist in the control he has exercised over the design of buildings, but his insight in arranging them on the land, the natural features of which he takes advantage of and enhances. And this latter and more valuable asset can be obtained for poor and rich alike over the whole country. The alternative is *laissez-faire* and the completion of the destruction of miles of country during our lifetime, and it will be left for photographers and artists to show what England was before its beauties were destroyed by ignorance and a greed which is not even always profitable.

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Illustrations.

FURNESS HOUSE, LEADENHALL STREET AND FENCHURCH STREET. M. E. Collins, Architect.

Notes and Comments.

New Vinerian Professor.

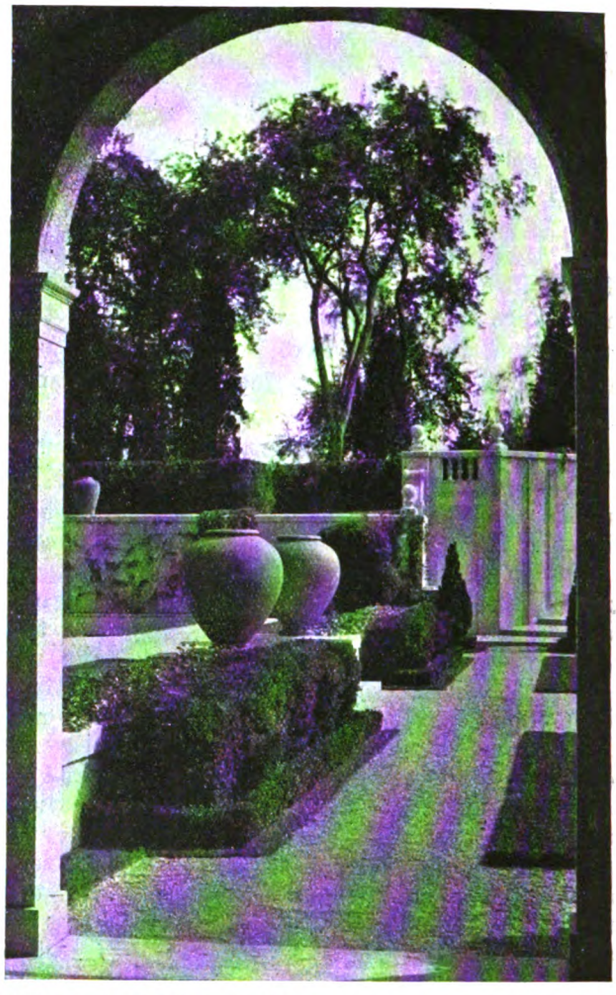
Dr. William Searle Holdsworth, K.C., Fellow of St. John's College, and All Souls Reader in English Law, and one of the Directors of this paper, has been elected Vinerian Professor of English Law at Oxford, in succession to the late Mr. W. M. Geldart. The new Professor, who is fifty-one, is All Souls Reader in English Law in the University, and Fellow and Lecturer in Law at St. John's College. The son of a solicitor, he went from Dulwich School to New College, and obtained firsts in the schools of Modern History and Jurisprudence, and a second in the B.C.L. examination. Afterwards he was called to the Bar by Lincoln's Inn, having won an Inns of Court Studentship and the Barstow Scholarship; he took "silk" in 1920. From 1903 to 1908 he was Professor of Constitutional Law at University College, London. His publications include important works on the law of succession and the history of English law; also articles in English and American legal reviews. He is an associate member of the Royal Academy of Belgium. We are glad to say that Dr. Holdsworth has promised us a series of articles on the trend and effect of the new Land Laws now under discussion.

Reports of the Building Research Board.

The reports are comprised in two booklets which contain interesting material. One report deals with building in cob and pisé-de-terre, and the other contains a graphical cost analysis of cottage-building by Mr. W. H. Wainwright. The result is summed up in the introduction, in which it is stated that it cannot be claimed that any considerable urban housing scheme could be satisfactorily carried out in this country in either pisé-de-terre or clay lump. The results of the cost analysis of cottage-building have been reduced to diagram form, and from these, as is explained in the accompanying letter-press, the effect of fluctuation in rate of the different materials on the ultimate cost of the cottage may be appreciated. The report states that, presuming the price of slates was increased by £6 per 1,000, the increase in the cost of the cottages would be £8 5s. If sheet lead decreased £23 per ton, the total decrease in the cost of the house would be £3 12s. Further, the diagrams can be used for two purposes:—(1) To show the variation in the cost of a cottage due to fluctuation in the price of materials, and (2) to give the total cost of that material in the cottage with any given cost per unit. For example, in the latter case, suppose facing bricks cost 92s. per 1,000, reading up the vertical from 23s. (quarter of 92s., since 92s. is not given), the figures £7 1s. is obtained, and this, multiplied by four, is £28 4s., which is the cost of facing bricks for the cottage. Copies of the reports can be obtained at H.M. Stationery Office, Princess Street, Westminster, S.W. 1.

The Building Guilds and the Government of England.

The Building Guild held their annual meeting in Newcastle, and their National Secretary, Mr. S. G. Hobson, gave a rosy description of their progress. Starting without a penny of capital, they have during the last eighteen months spent £52,000 on plant, 33⅓ per cent of which has been written off on their balance sheet, though half of it is quite new. The surplus earned amounts to £40,000. One of their difficulties is stated as being the heavy retention amount retained by Corporations, which amounts to £20,000. Under the contract agreed on with the Ministry of Health, they were allowed prime cost plus six per cent. plus £40 a house, which amounted to ten per cent., and actual figures worked out within a decimal point of this figure. Their lump sum contracts amount to £700,000, of which they have completed £130,000 of work. The Furniture Trades Guild, started in times of depression, had more work than it could cope with. All this is very cheerful reading, and we wonder if the Government could not be run more economically on guild lines. We should not grumble if they could start without money, even if ministers were paid for wet time and supported in sickness, if they could accumulate handsome profits instead of deficits to be met by supplementary estimates. We throw this out as a suggestion.



GARDEN, "SHALLOW BROOK FARM," MOUNT KISCO, N.Y. B. W. Morris, Architect.

School Buildings.

We are continually hearing of the necessity for building cheaper forms of schools, but examination of the ordinary modern school will not suggest to us many ways in which expenditure can be lessened as long as medical and other experts insist on the high standards which are at present insisted upon. We do not regard the inclination displayed to use temporary structures as a helpful one or a very reasonable way of meeting what is regarded as a difficulty. It is reasonable to assume in the case of hospitals that many modifications may be arrived at in the course of years, but in the case of school buildings some small modification of the Derbyshire open-air type should prove sufficiently good for the future, and if so, it is evidently more economical to erect buildings which will last than those which must be replaced within a comparatively brief space of time. The real economies to be suggested seem to us of a broader and more general type, like those suggested in the Geddes Report. The paring off building costs is in a word a very small item in the total.

A glass structure is being erected across the interior of the dome over the principal Court at the Old Bailey to improve its acoustic properties.

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London Art Galleries.

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The Summer Exhibition of the Burlington Fine Arts Club, which on this occasion is occupied with pictures, drawings, and sculpture of the French school of the last hundred years, though showing a good deal that is of interest, is scarcely on the level either of some of the previous displays at this club, or, in fact, with the wonderful subject-matter offered by the period which has been selected. When we think of French art of the last century there rise to our mind the names of Delacroix, Ingres, Couture; on the more academic side, of Cabanel, William Bouguereau, Baudry; then, among the landscape men, Camille Corot, Dupré, Diaz, Daubigny, youngest of the group; then Jean François Millet at Barbizon, Gustave Courbet, Alfred Stevens—the whole evocation of a new outlook on art, in contrast to and often beside of the classic tradition in the great figure-work of an old school.

The subject is immense and full of exceptional interest; to be touched at all adequately, in a comparatively small exhibition, it would need the most careful selection and the choice from the best material. The three first paintings here win us at once: Lépine's "River Scene"; a "Harbour Scene" by Boudin, which is absolutely typical of this fine painter of sea; and a little gem from Corot's hand, a signed work, its subject the famous fountain at Rome, "La Vasque de l'Académie de France," over which we get such a wonderful view of St. Peter's Basilica as we ascend to the Pincian gardens. To be grouped with these on this wall are another Lépine landscape and "The Windmills," luminous and beautiful, by Daubigny.

Thomas Couture (1815-1879) is seen very well in this exhibition with two paintings—one a small portrait of Michelet, the great historian of the French Revolution, and the other a "Study of the Nude," which is magnificent in its drawing; and no less successful is Daumier's study of the "Victorious Barrister" ("L'Avocat Triomphant"), descending the steps with success not only in his face but in every movement. Between this last and the Michelet portrait we make our first acquaintance here with Cézanne, in what have been called his "everlasting apples"; set upon tables, with the accompaniment of a tea-cup or jug, the whole thing seems sliding to the floor, giving a painful impression of instability. One is tempted to ask why the French painters of this epoch—or earlier, as in Degas' "Portrait of Diego Martelli"—seem to delight in such violent perspective; the short, stout figure of the sitter, seated on a chair in the middle of the room, must have been drawn from somewhere near the ceiling for the perspective to be correct.

But if we turn for comfort to the painters of the older school we do not always fare better. Ingres was certainly a fine figure draughtsman, but in his "Odalisque à l'Esclave" here there is no atmosphere, no emotion or life; the nude figure of the recumbent girl is as correct as it is dull and uninspired, the figures behind wooden, the whole background like a painted curtain hung up behind the Odalisque asleep. We wonder that the creator of "La Source" and the wonderful portraits of the Musée Bonnat could have painted anything so colourless, so uninspired. Near this is the curious "L'Esprit veille" (Manaò Tupaù), signed P. Gauguin, '93. I do not always admire Gauguin's art, but I feel at least that in this painting of the nude Tahitian girl lying asleep, like the Odalisque, but with the emergent spirit form standing beside her, he shows himself a colourist, in the telling harmony of the blue and orange with the warm brown skin of the sleeper. In the corner near this Edouard Manet has evolved harmony out of a silk hat in combination with books and flowers; and there are two delightful little paintings by Monticelli, gem-like and finished in drawing.

A very curious and difficult picture in this room is the "Children Leaving School," which seems to possess strong elements of Lucas, if not of Goya himself, though I assume that Sir Robert Witt, who is lending it here, has good reasons for placing it under the name of Charlet. Nicholas Toussaint Charlet, who has been called "the Béranger of painting," devoted himself to the legend of Napoleon, and his "Episode in the Retreat from Moscow" made a stir in the Salon of 1836; as a painter of the "grande armée" he was perhaps surpassed by his pupil Raffet, and in the subject here there is no trace of his battlefields or red-nosed corporals. Not the least interesting feature of the exhibition is the sculpture, which includes Rodin ("Bernard Shaw" and the much-discussed "L'Homme au nez cassé"), Barye ("Tigre qui marche"), and a signed terra-cotta by Dalou, while downstairs the drawings—Corot, Daumier, Puvis de Chavannes, Degas, Ingres—are by no means to be overlooked.

The Leicester Galleries reopened last week with drawings and caricatures by Edmond X. Kapp, and in the inner room water-colours and etchings by Anthony Raine-Barker. Edmond Kapp's "personalities" in this exhibition include "Monsieur Coué demonstrating," with a second, even better, portrait sketch of the same philosopher of will-power; then an excellent likeness of "Sir Henry Wood *intime*," of H. G. Wells, of the Rev. R. J. Campbell swooping down out of the pulpit like an avenging angel, of the Rt. Hon. H. H. Asquith, of Lord Howard de Walden, who seems to have been caught when "trying to look pleasant," of Zangwill, Einstein, and "The New Old Shaw." It will be seen that these caricatures, from which I mention only a selection, offer some attractive material, treated in a very brilliant manner: it may be questioned whether such subjects as No. 16 ("Cocotte") and No. 40 ("Souteneur") would not have been with advantage omitted. The water-colours by Raine-Barker, among which I noted specially "La Bouille," "Cuckmere River," and "Durham," are very clean and fresh, and show good technique; in "Mists in Balderdale" tinted paper seems to have been used effectively.

At the Gieves Gallery Mr. Webster Murray has been showing a very attractive series of portrait studies in charcoal and colour. "I do not know," says Mr. Haldane McFall, "whether Downman and his school were slow in recording their exquisite pencilled portraits tinted with colour, but Murray looks like capturing a vogue with his larger charcoal portraiture. And just as Downman is always easy to get on the walls of a drawing-room, so to-day is Webster Murray." The technique of these drawings is interesting and original. They are drawn first in charcoal, always a most fascinating medium: but charcoal drawing translated direct into water-colour is apt to get mixed with the colour, as I have sometimes found to my cost, and these drawings are therefore carefully fixed before the colour-wash is used, but then are frequently strengthened—as the artist himself tells me—when needed, to give final richness and strength. The result, as seen in the portrait studies of Mr. Charles B. Cochran, Mrs. Bernard Foster, Mlle. Trini (in the "Fun of the Fayre"), Miss Flora le Breton (as "Rosemary" in "The Glorious Adventure"), Miss Dorothy Hasting in a Spanish mantilla, and Sir Henry Curtis-Bennett, K.C., is very spontaneous and attractive, and makes also effective wall decoration where the oil portrait might be heavy. Portrait drawings are also being shown at the Brook Street Art Gallery by Mildred H. Collyer, beside an exhibition of water-colour drawings, their subjects from London and elsewhere, by Lady Cohen. At the same Gallery the exhibition of water-colour drawings of "Portugal, Egypt, and Hampton Court," by Miss Mary Stirling, opened on May 29. The Société des Peintres-Graveurs Français, which occupies in Paris something of the position here of the Society of Painter-Etchers, is holding an attractive display of etchings by Béjot, Albert Besnard, Bracquemonde, Colin, Matthey, Lepère, Raffaelli, Steinlen, and Rodin at the Fine Art Society during the months of May and June. The Independent Gallery is faithful to modern art as displayed by Friesz and Vanessa Bell. At Brighton the Kent Lacy Studios have held a successful show of drawings by the late Raphael Kirchner.

S. B.

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Furness House.

(See Inset Illustrations.)



TYPICAL OFFICE FITTED, FURNESS HOUSE. M. E. Collins, Architect.

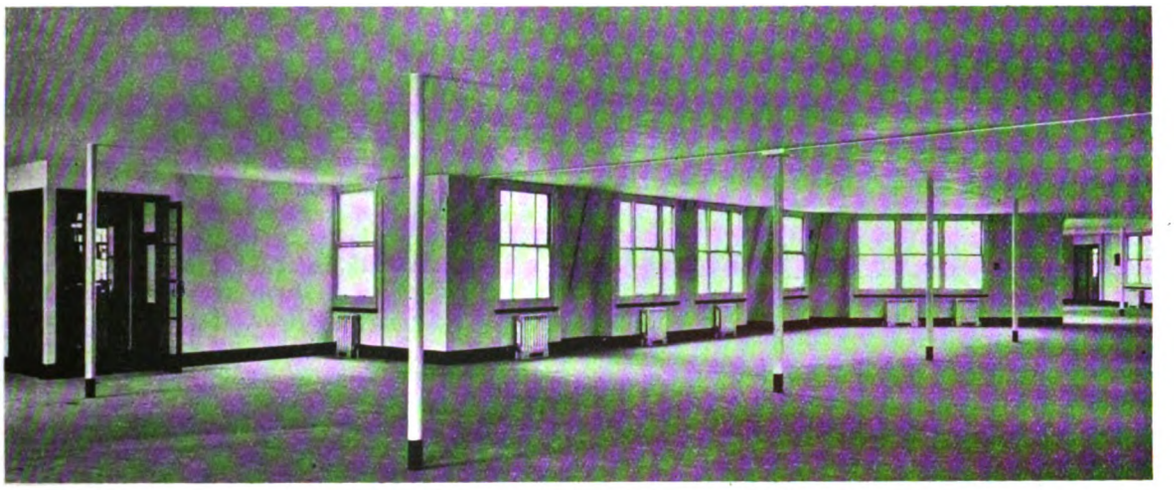
The great block of offices erected for the City of London Real Property Company, Limited, from the designs of Mr. M. E. Collins, having frontages to Leadenhall Street, Fenchurch Street, and Fenchurch Buildings, and entitled "Furness House," is not only one of the largest office buildings in the City of London, covering a superficial area of land of about 28,419 feet, but the most skilfully arranged business block we have examined. Every detail has been studied and every part of this great block has been so contrived that ample light is secured in all positions; indeed, in some that many planners would have considered impossible.

The building contains basement, lower ground, ground, gallery, 1st, 2nd, 3rd, 4th, 5th, and 6th floors, and has a superficial floor area of about 4 acres 33,455 feet, and a height of about 143 feet. It is fitted with every modern convenience and labour-saving device, including sanitary and locker accommodation for both sexes. There are two main internal staircases and two external, and two additional staircases for the private use of Messrs. Furness, Withy & Company and their kindred companies. There are eight elevators. Many strong-rooms have been installed, most extensive boiler, pumping, air-treatment, ventilation, vacuum machinery, and telephone machinery rooms, with large storage tanks for water, mainly positioned under the buildings, having large coal and coke cellars next boilers and workshops, &c., &c., for repairs. Special arrangements have been devised for taking in and out boilers and machinery without disturbing the tenants in the building. Extensive meter-rooms are so positioned as to be controlled without affecting the user of the premises. Letter chutes and postal boxes permit of posting on each landing, the postal authorities collecting at stated times of the day. A dual and adequate escape in case of fire is secured to every part of the premises. The construction is fire-resisting throughout, the "Kleine" patent hollow tubular reinforced flooring being used, with solid steel vertical supports. All internal staircases are of reinforced-concrete construction. The elevations to Leadenhall Street and Fenchurch Street are Portland stone with granite bases, that to Fenchurch Buildings being egg-shell gloss ceramic ware.



SOUTH END OF LARGE HALL. M. E. Collins, Architect.

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TYPICAL OFFICE, SHOWING FLOOR AREA.

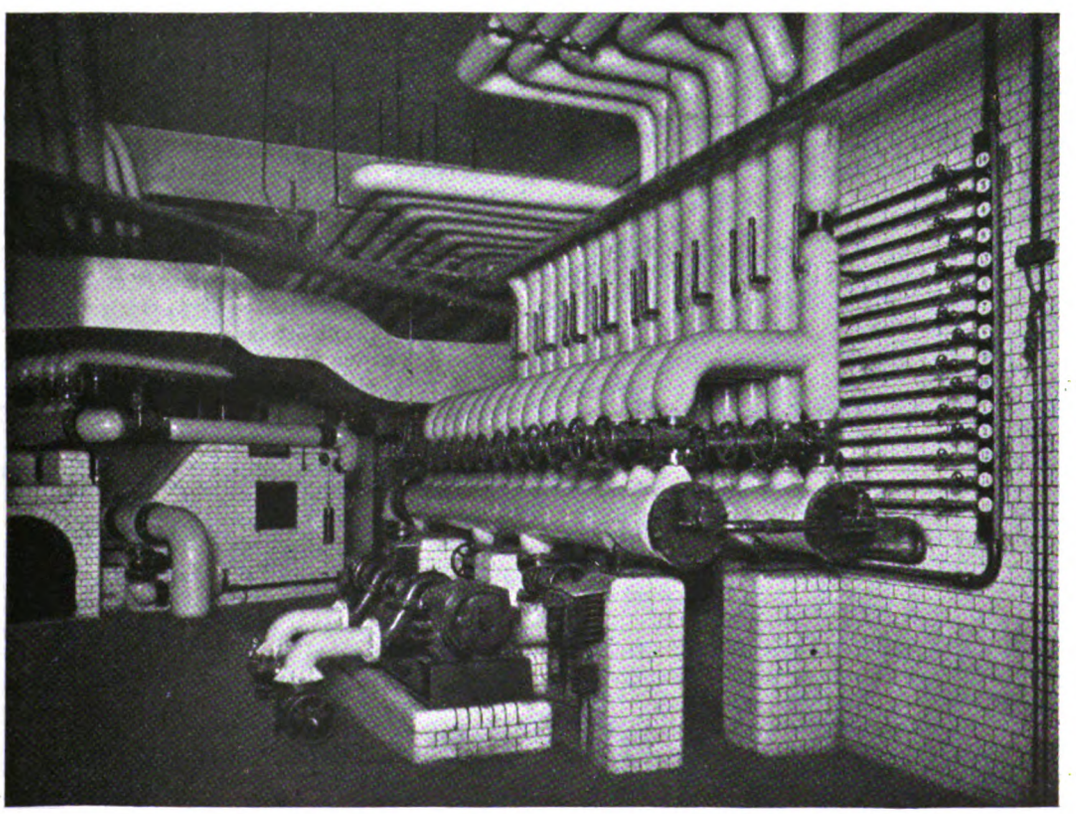
The nine main floors forming the office parts of the building are all so wonderfully lighted that tenants requiring accommodation have no need to consider the levels at which the offices are situated, and it can hardly be conceived that any future refinements in the art of planning will ever render this building out of date. Another feature of the scheme is one to which more attention might well be directed, and that is that while the structure and its decorative treatment is adequate, permanent and rich, it would be hard to indicate where any money could have been saved without detriment to the development. This point is one which we are glad to emphasise, for Mr. Collins in showing that he so thoroughly understands the aims and objects of the commercial world helps to strengthen the position of our profession.

The ground floor is divided into two unequal parts by a corridor which leads from Leadenhall Street to Fenchurch Street, the difference in level of the two thoroughfares being secured by slope, all steps being avoided, and off this corridor are the two main staircases before referred to, situated near each street-front, and running from top to bottom of the building. To the left of this corridor are the great shipping offices of Messrs. Furness, Withy & Company and their several companies, and to the right other shipping accommodation.

The main shipping office on the ground floor is a great top- and part side-lighted apartment 96 feet by 120 feet, and having only four columns supporting the superstructure, and a gallery is carried round this hall, and adjoining are other offices, directors' rooms, &c., &c. The principal board room and administrative offices connected with the Company are situated on the gallery level, approached by the two-special staircases before referred to, and which also serve the lower ground floor and upper floors used for additional offices.

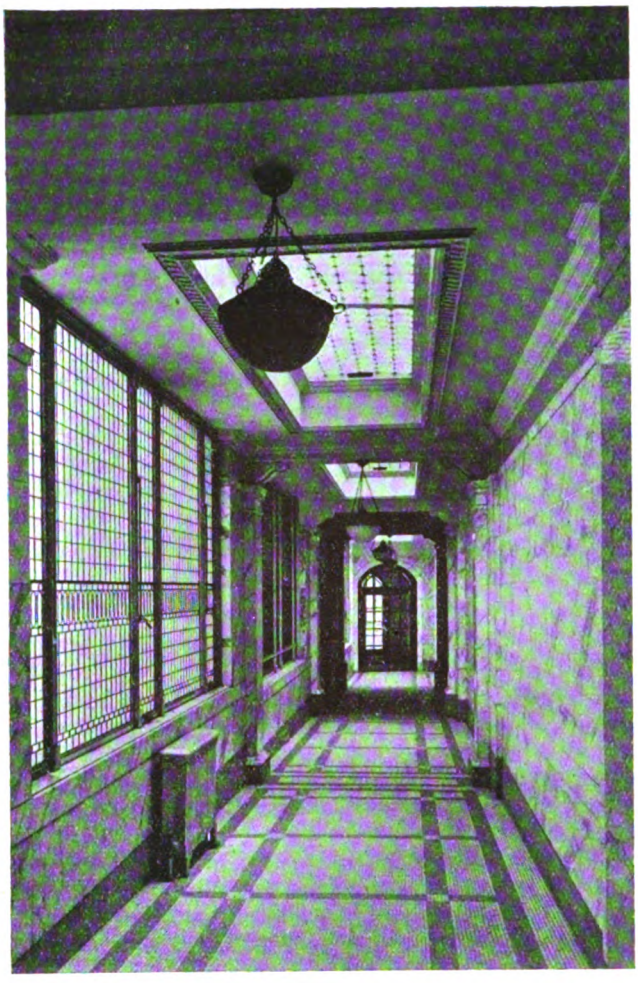
The steel constructive work, of which we are unfortunately unable to give details, is unusual, and was suggested by the architect and designed by Sir Douglas Fox & Company, and was executed by Messrs. Moreland, Hayne & Company, Limited. It is on the cantilever principle, and is so developed as to avoid all projecting beams below ceilings; thus no casings or cornices are required, and the perfect conditions of the wide expanses of ceilings over the undivided sections of the building bear testimony to the skill of the engineers. The internal vertical supports are solid steel columns without caps or bases.

The heating and ventilating plant used in the building is, as might be expected, elaborate and extensive in its character.



FURNESS HOUSE: VIEW OF BOILER ROOM. M. E. Collins, Architect.

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CORRIDOR BETWEEN MAIN STAIRCASES.

The heating installation is the low-pressure hot-water accelerated system, the water being heated in four sectional steel tubular boilers, and circulated by means of electrically driven accelerating pumps, through pipes and radiators of the ventilating type throughout the building.

The boilers were selected after the consulting engineers had seen the new design of these boilers, patented by Messrs. G. N. Haden & Sons, at Trowbridge, and tested same at their works.

Each of the four heating boilers is capable of generating 2,500,000 B.T.U.s per hour with easy stoking, and it has been found during the last winter that under normal conditions two boilers will carry the load. It is only during exceedingly cold weather that a third boiler has to be put into commission. There is therefore a stand-by boiler at all times in case of emergency.

The accelerators are of Messrs. Haden's patent design and manufacture, and each will circulate the full quantity of water required to give the total emission of B.T.U.s called for during very severe weather, viz., approximately 6,500,000 B.T.U.s per hour.

The pipe-lines have been so designed and sized that the water can be circulated with a temperature drop of 25° Fahr. throughout the building.

This is registered by means of maximum and minimum recording thermographs.

The circulating mains are all sectionised, so that each floor or any section or department can be shut off and isolated for alterations or repairs if required. The iron body valves used in the heating installation were manufactured by Messrs. Jenkins Bros., of 6 Great Queen Street, W.C.

Each branch main is fitted with a thermometer, so that the boiler attendant can see that every section of the building is receiving its proper amount of heat.

The whole of the Shipping Department both on the ground and lower ground floors are supplied with constant ozonised fresh air from a Plenum installation, of an output capacity of 30,000 cubic feet of air per minute, composed of a complete air-conditioning plant, including washing and humidifying apparatus, warming battery, ozone treatment steel-cased blower and electric motor, and supply ducts, ensuring a constant supply of fresh warm air throughout the winter at all points, including the large hall and the lower ground-floor rooms, and cool air in the summer months.

The domestic hot-water supply is from two large vertical boilers with storage cylinders and tanks, and circulating mains to all draw-off points

The boilers will heat 1,600 gallons of water per hour and the storage tanks form a reservoir of hot water of approximately 2,000 gallons, at 150° Fahr.

There is a complete cold-water supply installed in the basement of the building, comprising two 8-inch Artesian bored tube wells, carried to a depth of about 500 feet and lined with steel casing.

The strata passed through were as follows:—

	Feet
Ballast	15
Brown clay	1
Blue clay	98
Grey sand	27
Mottled clay	13
Grey sand	74
Green-coated pebbles	1
Chalk and flints	271
Total	500

Bore-hole pumps of a capacity of about 2,000 gallons per hour are installed in both wells, one being actuated by means of silent-running worm gear, coupled direct to Newton's electric motor, the other with a hydraulically controlled head, by the Hydraulic Engineering Company. The supply is delivered to large storage tanks in the basement, from which it is forced to the tanks on roof by means of silent-running worm-driven pumps coupled to electric motors. The pumps are automatically controlled, ensuring a stoppage in the delivery when the tanks are full.

The whole plant in connection with the heating and ventilation was executed by Messrs. G. N. Haden & Sons, Limited, of Lincoln House, Kingsway, and of Trowbridge.

The deep wells and pumps were carried out by Messrs. Alfred Williams & Company, Limited, of Artesian Works, Bow, E.

These two contracts were executed from the designs and under the supervision of the Consulting Engineers, Messrs. Albion T. Snell & Partners, Suffolk House, Laurence Pountney Hill, Cannon Street, and Mr. Adrian Collins, Assoc.M.Inst.C.E., of No. 61 Old Broad Street, E.C.

Messrs. Pinching & Walton, electrical engineers, of 52 Cannon Street, carried out the lighting for Messrs. Furness Withy, the Prince Line, and other subsidiary companies, and also the signal-bell installations and tubing for Post Office telephones and wiring for electric clocks. A feature of the large electric pendant fittings in the main office of Messrs. Furness Withy is that they are hung by means of a centre rod, and not in the usual manner by chains. In connection with the ventilating installation above referred to this firm supplied the two large ozone-generating machines, the ozone being introduced into the air ducts conveying fresh air to various parts of the building.

The air in the sanitary apartments on the upper floors of the building depends for purification on ozone, two machines being installed, otherwise only natural external ventilation has been considered necessary.

Messrs. J. C. Christie, of 3 and 5 Mansell Street, Aldgate, provided and fixed the main electric cables, switchgear, &c., for supplying power to elevators, pumps, ventilating, and hot-air apparatus, as also for the lighting of main staircases, corridors, and sanitary apartments. The energy is taken from two electric-lighting company's mains at 400 volts for power and 200 volts for lighting,

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two pairs of cables being run to each floor, from which the various tenants can be supplied, the intake for the lower ground, ground, and gallery floors being brought in direct from the supply company's mains.

The house lighting is arranged so that all lights are under the control of the housekeeper and are operated from his office on the ground floor. Upwards of 5,000 feet of heavy-gauge screwed conduits and 7¾ miles of cable have been used on the work described.

Messrs. Davis, Bennett & Company, of Horseferry Road, have supplied and carried out the whole of the drains, which are of cast iron with cast-iron chambers, the sanitary plumbing, cold-water services, rain-water pipes, gutters, and external leadwork.

Messrs. G. Jackson & Sons have carried out the plasterwork of reception room, chairman's and directors' board room in connection with the Furness Withy offices and other private offices.

The Architectural Association.

The following is the result of ballot for officers and Council, session 1922-23:—

President.—Stanley Hamp, F.R.I.B.A.

Vice-Presidents.—L. S. Sullivan, A.R.I.B.A., Gilbert H. Jenkins, L.R.I.B.A.

Hon. Treasurer.—E. Stanley Hall, M.A., F.R.I.B.A.

Hon. Editor "Architectural Association Journal."—M. T. Waterhouse, M.C., A.R.I.B.A.

Hon. Librarian.—Manning Robertson, A.R.I.B.A.

Hon. Secretary.—J. Alan Slater, M.A., A.R.I.B.A.

Ordinary Members of Council.

Past President.—W. G. Newton, M.A., M.C., A.R.I.B.A. Major H. Barnes, M.P., F.R.I.B.A.; F. C. Eden, M.A.; H. S. Goodhart-Rendel; P. D. Hepworth, A.R.I.B.A.; E. J. T. Lutyens, A.R.I.B.A.; H. I. Merriman, A.R.I.B.A.; A. H. Moberly, F.R.I.B.A.; M. J. Tapper, A.R.I.B.A.; T. S. Tait, A.R.I.B.A.; C. Cowles Voysey, A.R.I.B.A.

Not Elected.

T. A. D'Arcy Braddell, F.R.I.B.A.; M. J. Dawson, F.R.I.B.A.; G. P. Fildes, A.R.I.B.A.; Oliver Hill; S. C. Ramsey, F.R.I.B.A.; A. B. Ll. Roberts, A.R.I.B.A.; H. A. Saul, F.R.I.B.A.; Philip Tilden; T. M. Wilson, F.R.I.B.A.; G. G. Wornum, A.R.I.B.A.

National Wages and Conditions Council for the Building Industry.

The National Wages and Conditions Council for the Building Industry at its meeting on May 26, having considered the position arising from the resolution passed at the meeting on March 17,

Resolved:

1. That the second reduction mentioned in the resolution referred to be confirmed.

2. That the wages resulting from the application of the resolution remain stabilised until March 1 next.

3. That the hours of work resulting from the application of the resolution, 44 hours per week, reduced to 41½ during December and January, remain stabilised until March 1 next.

4. That at the statutory meeting in January the Council reconsider the position, with a view of providing for both hours and wages as from March 1 next.

5. That within three months from the date of this decision a national rule be made to provide that walking time, where allowed, shall be paid for at ordinary time rates, and shall not be counted as part of the eight-hour day, the intention being to secure an actual working day of eight hours.

6. That the effect of the application of the last clause of the resolution of March 17 shall be to make the rates of wages payable to craftsmen and labourers engaged in the building industry as detailed below:—

Craftsmen's Rates on April 1, 1922.

1s. 10d., 1s. 9½d., 1s. 9d., 1s. 8½d., 1s. 8d., 1s. 7½d. 1s. 7d., 1s. 6½d., 1s. 6d., 1s. 5½d., 1s. 5d., 1s. 4½d., 1s. 4d.

Craftsmen's Rates on June 1, 1922.

1s. 8d., 1s. 7½d., 1s 7d., 1s. 6½d., 1s. 6d., 1s. 5½d., 1s. 5d., 1s. 5d., 1s. 4½d., 1s. 4d., 1s. 4d., 1s. 3½d., 1s. 3d.

Labourers' Rates on June 1, 1922.

1s. 3d., 1s. 2¾d., 1s. 2¼d., 1s. 2d., 1s. 1½d., 1s. 1¼d., 1s. 0¾d., 1s. 0¾d., 1s. 0½d., 1s., 1s., 11¾d., 11½d.

7. That the eight-hour day shall be worked with one break, reasonable time being allowed for adjustment where a two-break system now operates.

Forthcoming Events.

Saturday, June 3.—Northern Architectural Association. Sketching meeting at Finchale Abbey.

— Edinburgh Architectural Association. Visit to Corporation Gasworks, Granton.

Wednesday, June 7.—Royal Archæological Institute. Meeting in the apartments of the Society of Antiquaries, Burlington House, Piccadilly, W. Paper by Mr. E. W. Lovegrove, M.A., entitled "Eleventh-century Work at Chester Cathedral." 4.30 p.m.

Thursday, June 8.—Royal Institute of British Architects. Popular lecture at 9 Conduit Street, W., by Mr. D. S. Maccoll, M.A., LL.D. (Keeper of the Wallace Collection), entitled "What is Architectural Design?" 5 p.m.

— Royal Institute of British Architects. Second annual conference opens at Cardiff. Reception by the Lord Mayor at the City Hall. 8.30 p.m.

Friday, June 9.—Royal Institute of British Architects. Conference at Cardiff.

— Paper by Major Harry Barnes, M.P., F.R.I.B.A., on "Unification and Registration." 10.30 to 11.30 a.m. Visit to City Hall and Law Courts, Cathays Park. 11.45 a.m. to 1 p.m. Visits to Welsh National Museum and Glamorgan County Hall. Tea in the Museum. 2.30 to 5 p.m. Banquet at the Park Hotel. 7 to 7.30 p.m.

Saturday, June 10.—Royal Institute of British Architects. Conference at Cardiff. Paper by Mr. Herbert T. Buckland, F.R.I.B.A., on "Civic Architecture and Advisory Art Committees." 10 to 11.15 a.m. Paper by Mr. Percy Thomas, O.B.E., F.R.I.B.A., President of the South Wales Institute of Architects, on "Problems of Practice." 11.15 a.m. to 1.30 p.m. Visit to Cardiff Castle and Grounds. 2 to 6 p.m. Tea in the Banqueting Hall. 4 p.m. Smoking Concert, by the invitation of the South Wales Institute of Architects. 8 p.m.

Sunday, June 11.—Royal Institute of British Architects. Char-à-banc tour to Tintern Abbey and the Wye Valley. 10.15 a.m. to 7.15 p.m.

Competition News.

The President of the Royal Institute of British Architects has nominated Professor C. H. Reilly, O.B.E., F.R.I.B.A., as assessor in the Dewsbury War Memorial competition.

The President of the Royal Institute of British Architects has nominated Mr. Alfred W. S. Cross, Vice-President, R.I.B.A., as assessor in the Lytham Public Hall and Baths competition

Newcastle Corporation Estate and Property Committee have decided to invite plans in open competition for a general scheme, involving baths and a public concert-hall, on the site of the Northumberland Baths.

"The Architect" Fifty Years Ago.

June 1, 1872.

The Strike of To-Day.

It is evident on all hands that we are living in an era of strikes. It would seem as if every class, male or female, that owns a master in any form has taken to "striking," whatever may be its character or complaint. Even the bucolic temperament has been affected by the epidemic. The "agricultural labourer" has not only been rampant of late in the assertion of his rights, but he has become, in consequence, the pet of amateur philanthropists and political economists. In his case, however, it should fairly be conceded that he has been long-suffering, and far from being "puffed up." Not so with the operative in the building-trade. He may be said to be continually in a chronic state of *strike*. We all know, from a somewhat stale experience of the past, that the "working-man" of this type has been in recent years distinguished as if he belonged to some special order of creation. This, of course, has been the result of the game played by the professional agitator, a personage much too common of late in the body social and politic. Discontent! Discontent! Discontent! seems to have become as much the recipe for the operative as "Delivery," in its triple iteration, was prescribed for the orator by Demosthenes. What are to be the results of such a spirit, in relation to the event of to-day in the building-trade, it is, no doubt, difficult enough to predict at this moment, though it is easy enough to realise its meaning.

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Modern Methods in Building Construction.—XIX.*

By Albert Lakeman, M.S.A., M.C.I.

FOUNDATIONS ON SOFT SOILS—(*continued*).

Foundation Piles.—The essential points to be considered in connection with soft soils of great depth were stated as five in number, and the previous descriptions have covered three of these, viz.: (1) the barrier for keeping back adjacent soil; (2) a watertight barrier around the excavation, and (3) the provision of pumping. The fourth point which must now be considered is that of providing the most economical and efficient method of executing the supporting units for the foundation of the superstructure, and, generally speaking, some system of piling will be adopted.

Considerable progress has been made during recent years in connection with the design and execution of piling work, and the most important developments are those dealing with concrete and reinforced concrete piles. Timber piles were universally adopted a few years ago when concrete work was in the experimental stage, but it was found that timber possesses many disadvantages, the chief of which is the tendency to rot and decay under certain conditions, and this fact has led engineers to seek a material capable of insertion in the soil, but not subject to deterioration after a few years. Concrete construction has been extensively developed for all parts of a building structure, and it has naturally been adopted for foundation piles with great success. Reinforced concrete piles have been found to possess some minor disadvantages during the execution of the work, among which can be given: the extra weight to be handled as compared with timber, the impossibility of floating them into approximate position when the work has to be carried out entirely in the water, and the necessity of waiting some weeks for them to mature after they have been moulded before they can be driven. Also the length required must be determined with reasonable accuracy, and the piles must be driven down even if additional resistance is met with, as the cutting off of a portion at the top will not prove a simple operation as is the case with timber piles. These limitations have led to the development of concrete piles cast in place by various methods, and the special nature of the work has encouraged many firms to specialise in concrete piles of their own particular design executed by their own methods.

This variation and specialisation of concrete pile work prevents any hard and fast rule being laid down as regards the type and method to employ for foundations generally, and much will depend on the circumstances which govern any particular scheme. The modern method will certainly be that obtained by the use of concrete piles in some form, but the particular design adopted and the application of the material will depend on the comparative strength, cost, and speed of the various systems available.

Engineers, architects, and contractors will be well advised to study the claims put forward, and the merits of the various types that can be obtained, before deciding to execute the work in any particular way, more especially if their experience in this class of foundation work is limited. In order to provide an easy form of reference some particulars and claims of the various piles and methods on the market are given, and from these the reader will be able to form an opinion of the advantages put forward and the essential points to be considered in the selection of a pile for foundation work.

The Simplex system of concrete piling is designed and executed by Messrs. Simplex Concrete Piles, Ltd., of Victoria Street, Westminster, and this type is one where the concrete pile is cast in position by special means. The method employed is that of driving a steel tube, known as the "form," usually about 16 inches diameter and having an enlarged point, into the ground until the required depth is reached, when the tube is filled with freshly mixed concrete of a suitable consistency, and of sufficient quantity to make the pile, after which the form is slowly withdrawn by means of special tackle operated by the pile engine. During the process of withdrawing the form the concrete issues from the lower end, which is open, completely filling the hole made in driving the tube, and also filling any voids in the sides of the hole should any occur through the displacement of stones or boulders during the driving of the steel tube. In the process of setting the plastic concrete will naturally obtain a certain amount of adhesion with the surrounding compressed soil, and this will materially assist the development of skin friction which is an important factor in the bearing capacity of a foundation pile.

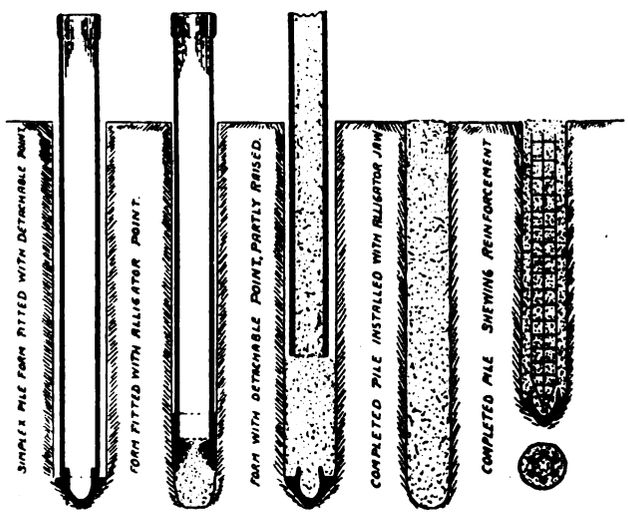


FIG. 108.—TYPES OF SIMPLEX CONCRETE PILES.

The method of forming the piles is illustrated by the diagrams in fig. 108, and it will be seen that the point used with the steel tube is detachable, and when the tube is withdrawn the point is left in the soil to form a permanent toe for the concrete. The maximum diameter of this point is 1½ in. wider than the diameter of the tube, and this enlargement facilitates the driving and removal of the form, and in addition, the sizes of the concrete pile is also increased. In some cases the form is fitted with an alligator point which is attached to the tube and withdrawn with it, and the diagrams show the different stages in the formation of piles of the two types.

The Simplex Concrete Piles Co. claim that a considerable saving of time is effected owing to the piles being driven and constructed by practically the same operation; no time therefore being lost in casting piles some months before the actual driving commences. Also the great objection to the use of cast piles, which of necessity must be subjected to great driving shock, is entirely obviated by the use of the Simplex system, and therefore no risk is run of shattered or cracked piles. Other advan-

*PART I.—I. Introduction, Steam shovels, Jan. 13; II. Steam shovels, Trench diggers, Jan. 20; III. Grab buckets, scrapers, Jan. 27; IV. Drag-line excavators, Feb. 3; V. Derricks and cranes, radial loader, paving-breakers, Feb. 17; VI. Surplus Soil Transport (Hand Labour), Feb. 24; VII. Surplus Soil Transport (Horse-drawn wagons, Steam-driven wagons), Mar. 3; VIII. Surplus Soil Transport (Steam-driven wagons), Mar. 10; IX. Surplus Soil Transport (Steam-driven wagons, Petrol wagons, Narrow-gauge track with wagons), Mar. 17; X. Surplus Soil Transport (Narrow-gauge track with wagons, Trucks on Standard-gauge track, Electrically-driven trucks and vehicles), Mar. 24.

PART II.—XI. Foundation Work (Ordinary soils, Soft soils), April 7; XII. Foundation Work (Soft soils), April 17; XIII. Foundation Work (Soft soils), April 21; XIV. Foundation Work (Soft soils), April 28; XV. Foundation Work (Soft soils), sheet piling, May 5; XVI. Foundation Work (Soft soils), steel-sheet piling, May 12; XVII. Foundation Work (soft soils), steel-sheet piling, pumping, May 19; XVIII. Foundation Work (soft soils), pumping, May 26.

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tages claimed include increased skin friction due to the casting of the pile in the soil as compared with the comparatively smooth surface provided by wood piles or concrete piles pre-cast, and piles of varying length can be constructed with one pile-driver without any trouble or delay, finding out in advance what length of pile will be required. If necessary to strengthen the plain concrete pile any form of steel reinforcement can be inserted



FIG. 109.—SIMPLEX PILES EXPOSED FOR INSPECTION AT ALBERT DOCK EXTENSION.

before the concrete is poured. The pile-driving apparatus with which the piles are driven is fitted with the latest improvements to keep the plant quite up to date, and machines of various sizes are available for the installation



FIG. 110.—SIMPLEX PILES READY FOR CAPPING.

of piles to all practical depths. The large machines are equipped with driving forms, in one length, suitable for installing piles up to 60 feet without the use of followers.

In connection with the claim for economy with this system as compared with the old-fashioned method of timber piles the comparative figures for a wall foundation when the low-water level is considerably below grade show that the Simplex concrete piles will save (a) two-thirds of the concrete footings, (b) two-thirds of the excavating, (c) all sawing off below water, (d) all strutting or shoring, (e) all pumping of water, and (f) three-quarters of the total time required for execution. In

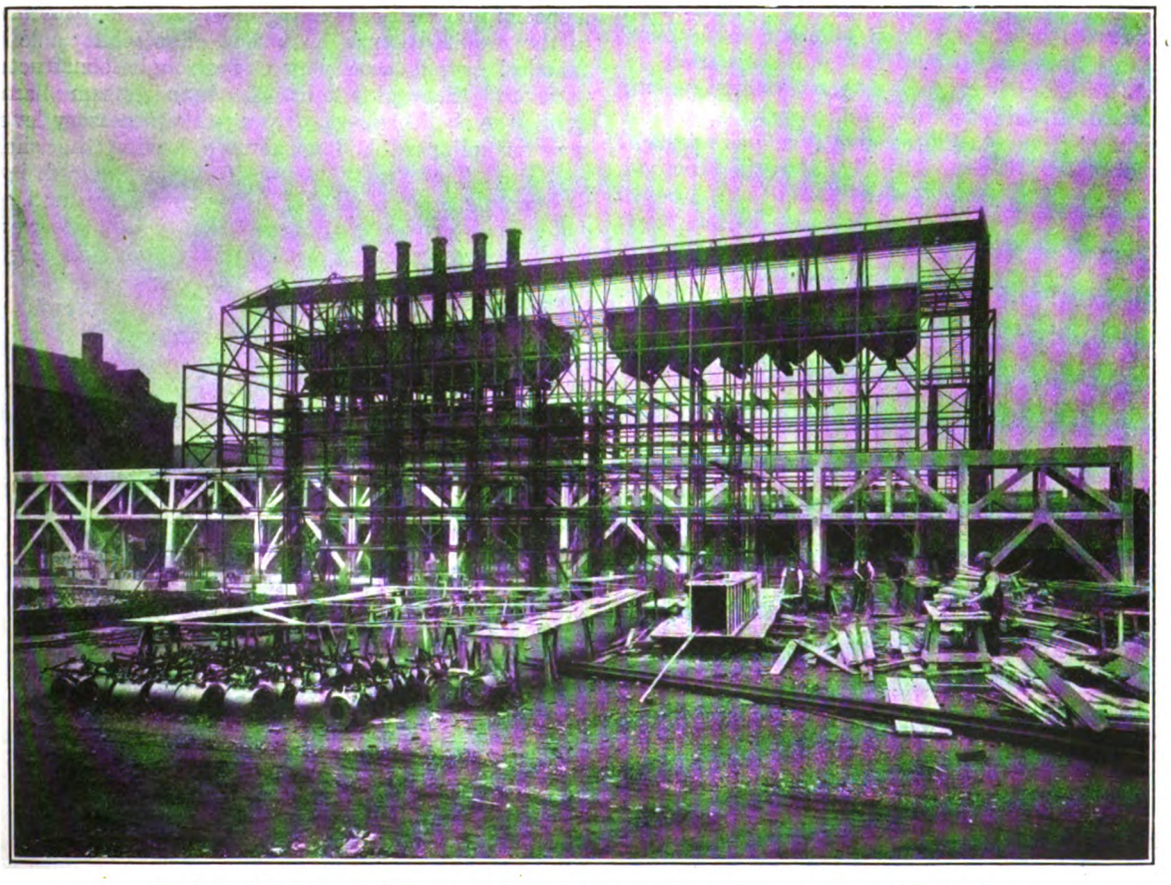


FIG. 111.—NEW GAS WORKS FOR BLACKBURN CORPORATION AT GREENBANK.
Reinforced Concrete Crane Gantry, Retort House Foundations, and Coke Hoppers built on Simplex Concrete Piles for West's Gas Improvement Company, Ltd., Manchester. Designed by Mr. BURNARD GEEN, M.I.C.E.

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addition, the concrete piles are absolutely permanent, whereas the wood piles will be liable to deterioration.

Another comparison compiled by the Simplex Co. is that covering a mass concrete pier foundation for a stanchion carrying a load of 480 tons where hard pan is about 30 feet below the surface. The comparison shows a saving in favour of the Simplex piles of (a) three-quarters of the concrete, (b) all difficult excavations, (c) all shoring, (d) all pumping of water, (e) all dangerous work, and (f) five-sixths of the time required. These comparisons are made to show the Simplex system to greatest possible advantage, but there is no doubt that the piles cast in place are considerably more expeditious and economical than either timber piles or mass concrete piers where the soft soil is sufficiently deep to demand special foundation work. The present approximate price of these Simplex concrete piles, 16 in. diameter, when driven complete is 12s. 6d. per foot run, and it is claimed that as a general rule they will prove from 20 to 25 per cent. cheaper than pre-cast concrete piles of equivalent area. It will be understood that a fixed price for the installation of any type of concrete pile cannot be given unless the situation of the work and the conditions of the ground are known, and comparisons are therefore difficult and liable to criticism which will not be easy to answer. The speed with which the piles can be installed will depend on the nature of the site and the length of the piles, but on an ordinary scheme the execution will be at the rate of eight or ten piles per day of eight hours, where the average length is 25 feet and reinforcement is provided. An excellent idea of the satisfactory way in which the piles are formed is given in fig. 109, which shows two 16 in. diameter Simplex piles exposed for inspection at the South Albert Dock Extension, London, E., where the ground consisted of soft blue clay and alluvial deposit. Many examples and illustrations could be given of piles exposed by excavation after driving, which show in all cases that the formation is good, and the method is therefore a very reliable one. A typical illustration of the piles after being driven and ready for capping is given in fig. 110, thus showing the pile foundation for a wall at the premises of the Wallpaper Manufacturers, Ltd., Greenhithe, Kent, where the soil consisted of soft blue clay and alluvial deposit, and two recent schemes wherein these piles were used are illustrated in figs. 111 and 112.

Messrs. J. & W. Stewart, of Berkeley Street, London, who undertake all classes of piling work, specialise in the Raymond Concrete Pile, which type has been extensively adopted in America. It is an interesting method



FIG. 112.—NEW WORKS AT STOWMARKET FOR MESSRS. NECOL INDUSTRIAL COLLODIONS, LIMITED. Erected on "Simplex Concrete Pile Foundation.

of the cast-in-place concrete pile, and many advantages are claimed for this type as compared with pre-cast concrete or timber piles.

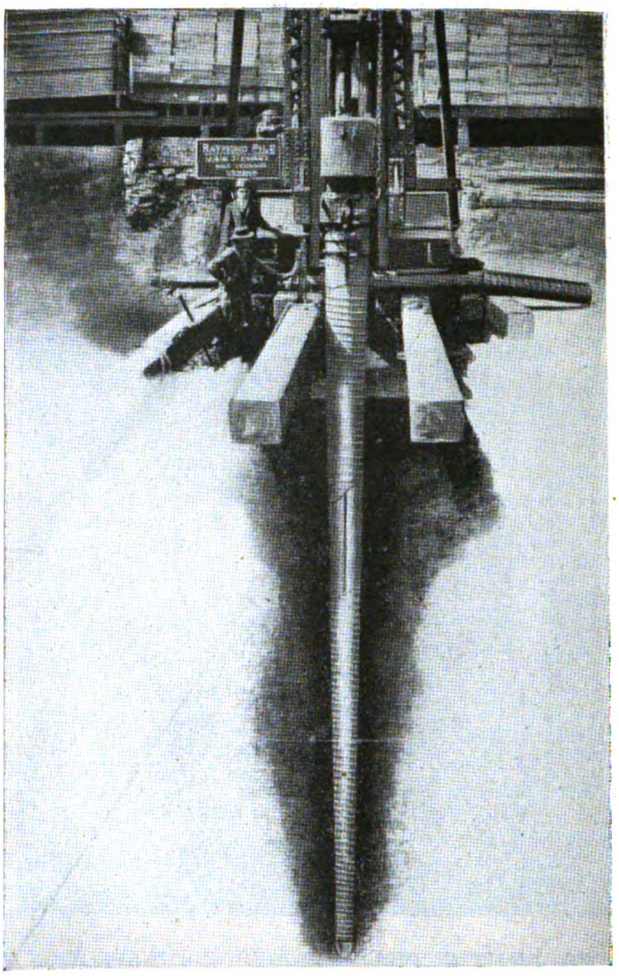


FIG. 113.—RAYMOND CONCRETE PILE.

The general idea of the method of forming these piles is shown in fig. 113, when the shell has been driven down into the ground and the collapsible steel core is still within the shell. The process briefly consists of sinking a special pile shell of tapering form and spirally reinforced to the required depth by means of a collapsible steel mandrel or pile core which is strongly constructed to withstand the repeated blows of the steam hammer. When the shell has been driven to the necessary level the core is collapsed and withdrawn leaving the shell in position. The reinforcement, if any is required, is then placed within the shell and the concrete is poured. The claims and principal features of this type put forward by the firm executing this work include points dealing with speed, quality, and economy as follows:—

1. The prevention of distortion; this is ensured by the steel shell which is left in the ground. Pre-cast piles cannot be guaranteed vertical, the calculated load may therefore be purely an assumption owing to the possible smashing of the pile point and a temporary set being obtained due to the spreading of the reinforcement and the disintegration of the pile.

2. The speed in driving—15 to 35 piles can be driven per day according to the grouping and length of piles; for instance, the actual driving of a 21 ft. pile shell into yellow clay was recently executed in seven minutes. The bearing value of this ground had been tested to at least 2½ tons per square foot.

3. Increase in frictional resistance due to the taper on the piles. The pile shells have an inclination of 1 in 60.

4. The pile shells are of copper soft quality black sheets, 20 to 24 gauge, and are manufactured in about 8 ft. lengths. These shells are spirally reinforced with $\frac{5}{16}$ in. diameter spring steel wire at 3 in. pitch. The shells are corrugated, and half the diameter of the wire projects into the corrugation. The wire is on the inside of the shells, and the ends of the wire are spot welded to the sheeting.

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5. The piles are driven to the exact length required. There is no time wasted in extending or reducing the length as is often necessary in pre-cast piling work.

6. The piles can be driven at a batter if necessary.

7. There is no blow delivered on the concrete.

8. Raymond piles are usually driven with a 5,000 lb. steam drop-hammer and a fall of 32 in. to 36 in. The hammer is capable of delivering fifty to sixty blows a minute. The frame revolves on a turntable, and the bearing girders can either be attached to a bogey for truck work or the frame can be moved from point to point on rollers. The turntable gives a larger range of action to the piling frame.

9. The Raymond piles compare favourably with timber piles because they can be driven at a greater speed, they are absolutely permanent, and they will carry a greater load, thus fewer piles are required and a smaller footing can be employed. The distinctive feature of this type is the tapering shell, and the makers claim many definite advantages for this method of forming the cast-in-place piles. The shell is drawn over the core in telescoping sections, and it is closed at the point by a steel boot, while it is a simple matter to vary the length of the pile to suit varying conditions by the addition or omission of one or more sections to or from the core. The use of the shell as a permanent lining to the sinking allows careful inspection to be made before the concrete is placed, as a light can be lowered to the point of the shell after the core is withdrawn if sunlight is not available or insufficient. Other advantages claimed are that the shell prevents the admixture of foreign substances with the concrete, and protects it from excess of ground water during the setting process, while the original moisture is retained until the hardening is complete. The shell also acts as a reinforcement to the pile itself until the concrete has properly matured as it retains the displaced earth forming the walls of the cavity, and there is no relaxation when the core is withdrawn.

The value of the taper is also a point of importance, and tests have been made to prove that the frictional resistance with this type is greater than that offered by parallel-sided piles. A pile foundation carries the load partly as a supported column with the point firmly driven into a hard strata or resting upon rock and partly by the friction with the ground throughout its entire length when the conditions are fairly good, but it is often the case that no hard strata can be reached in a reasonable distance from the surface, and under these circumstances



FIG. 114.—GROUP OF RAYMOND PILES READY FOR THE FOOTINGS.

it is necessary to develop sufficient frictional resistance to sustain the total load without appreciable assistance from the bearing at the point.

It is therefore of importance to use a type of pile which will develop the maximum friction for the material used, and it is claimed for the tapered Raymond pile that the taper is of great value in this respect. One test that was made to determine this value included the driving



FIG. 115.—BUILDING CARRIED ON RAYMOND PILE FOUNDATIONS.

of two piles each 20 feet long within a few feet of each other, where one core was 6 in. in diameter at the point and 20 in. diameter at the top, and the other core was 13 in. diameter at the point and 18 in. diameter at the top.

The one with the large point drove fairly hard from the start and required 944 blows of the steam hammer to secure a penetration of 20 feet, whereas the one with the smaller point started easily and required only 875 blows to secure the same penetration. After the piles had been made about a month both were loaded and carefully tested. The test showed that the pile with the greater taper carried a proportionately greater load, showing no appreciable settlement up to 65 tons, whereas the pile with the small taper—which was practically a straight pile—showed the same settlement with a load of slightly more than twenty tons only.

Many large buildings have been erected on Raymond pile foundations, and a typical view of a group of completed piles ready for the footings is given in fig. 114, while as an example of the carrying capacity reference can be made to the building shown in fig. 115, which is situated at the junction of White and Lafayette Streets, New York, where 2,342 Raymond concrete piles were used in the foundations.

(To be continued.)

The President of the Royal Institute of British Architects has appointed Mr. Gilbert H. Lovegrove, F.R.I.B.A., arbitrator in the matter of Mr. Edward Penton and Mr. G. H. Kitchin.

New building construction in Canada during the first quarter of the year was valued at 32,575,000 dollars. This is slightly less than for the corresponding period a year ago. Prices of materials having declined 20 per cent., however, the figures represent a larger volume of actual work than in 1921. Residences account for 35 per cent. of the total. Business building was less than half that of a year ago. Industrial construction was light. The outlook for new buildings is fair.

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Royal Institute of British Architects.

The fourteenth general meeting (ordinary) of the Session was held on Monday, May 29, at 9 Conduit Street, W., Mr. Paul Waterhouse, M.A., F.S.A., President, in the chair

The hon. secretary announced the death of Mr. John Eaglesham, elected Associate 1885; Mr David Christie, elected Licentiate 1911; Mr. John Jennison, elected Licentiate 1911; and Mr. A. V. de Souza, elected Licentiate 1911.

The principal business of the evening was a paper, illustrated with many lantern slides, by Mr. William Harvey, Owen Jones Student, 1913, entitled

"Structure and Colour."

Mr. Harvey dealt in the first part of his lecture with some general considerations, and linked them up to modern conditions. The greater part of the address, however, was chiefly concerned with colour as carried out in the past in different countries. However the architect faced his problem, said Mr. Harvey, colour and structure will take their place in the finished building. He may be interested in structural problems, and allow them to express themselves in his finished work—may, indeed, enlarge upon them and make them an integral part of its appeal as a work of art, or he may do all in his power to disguise the real structure with applied ornament unrelated to affairs of building. In a similar way, it is within the province of the architect to determine the colour of his buildings, to decide whether colour shall be considered at all, whether the cheapest or most convenient materials shall be used irrespective of their colour, or whether special attention shall be given to the selection of materials of intrinsically pleasing hues or of hues that have been found to take their place in the scheme without clashing under certain climatic conditions.

Over and above the possibilities inherent in the selection of sound building material of pleasant colour is the possibility of decoration by colour in the form of applied pigment, or by incrustation with marble, tiles, mosaic or metal.

In some way or another colour is bound up in the appearance of all architectural works, and when not formally invited it is rude enough to intrude its presence unasked. The colour of materials available at certain sites controls the finished effect of many works of architecture.

In both Jerusalem and Tiberias the same type of design is adhered to in the old domestic architecture; but whereas the one city, built of creamy limestone, is full of charming colour harmonies in relation to its surroundings, the architectural appearance of the smaller town is rendered dismal by the use of a local stone of sombre blue-black hue.

It is the misfortune of England at the present time that some of the most generally useful and economical bricks happen to possess a hard, unpleasant tint of pink, whilst bricks of a really beautiful colour can only be obtained at much greater cost. Fashion has something to do with our taste in bricks, and the only thing to steady our judgment is to ask ourselves whether the colour value of such and such a building material really goes well with the other things in the picture—the sky and clouds and foliage, if there is any in the neighbourhood.

Old London stock bricks, with their varied tints, including some black and red among the yellow, stand well under the grey skies and soot of London, and it is a pity that they were ever improved into dull uniformity. If anything, a little more variety would have improved them; and in the hands of architects who had an eye for colour they were given dressings of richer tint or banded with diagonals of vitrified headers.

There is one sure way of bringing out all the bad colour qualities of the cheap pink brick referred to, and that is to construct a long blank side wall of it with a front wall of better colour and texture designed with some pretence to architecture. When this is carried into execution, the detail on the front counts for nothing, it is bludgeoned out of existence by the shrieking conflict of colour on the side wall.

The natural colour of material is a matter of particular importance in an inclement and humid climate where colour added by the application of pigments is subjected to the severest possible tests. Where acid fumes, smoke and soot are present, the whole colour question must be governed by these extraneous considerations. The only buildings in London that appear really comfortable are those which happen to wear their mantle of soot with dignity, and in estimating the colour value of a new architectural work in the Metropolis of the world it is necessary to ask oneself whether it will prove to be a good subject for the soot and acid treatment.

Cleaning the exterior of a building is only practicable in certain cases, and even with the application of the steam brush there is the risk of turning a dirty building into a shabby one. Given time, the rain and wind acting upon the soot may produce pleasant effects upon a good many building materials; and Sir Christopher Wren was singularly fortunate in choosing materials which would still be beautiful when seen in the murk of a far bigger and far dingier London that that in which he lived and worked. Until greyness can be banished from our skies, it is futile to hope for a successful chromatic scheme of really brilliant or primary hues in our buildings. It is a law of colour composition that balance of hues or tones must be observed throughout the design as a whole, and where the background of sky is impregnated with soot the objects in the foreground must partake of the same character or be out of key.

In artistic language, colour out of key is sometimes described as being "muddy" or "dirty," so that in London pure primary colours might have to be referred to as dirty, dirt being matter out of its place; and primary colours, however much we may love them, are out of their place in a dingy city.

That this is not only a matter of idle theory is evidenced by the depressing effect of the patches of bright colours introduced by the posters on our hoardings. The artistry displayed in individual posters is often of a notable order, but they cannot be considered as appropriate colour notes in the street architecture, since they do not harmonise either with the sky or with the colours of adjoining buildings. With competent supervision of the main effects of colour and arrangement, hoardings might become things of real beauty and instruction, not only in respect to the values of advertised commodities, but as concerns colour decoration.

England is a country of atmospheric effects involving on many days in the year subdued colours for all objects in the background and middle distance. A day in the middle of spring may have a sky veritably the colour of lead. The green of distant grass and trees is overlaid with a similar gloom, and objects in the background, irrespective of their local colour, are toned down to a sort of depressing uniformity. It is the difficult business of the British architect to discover a colour scheme that will take its place against this background and still retain its interest.

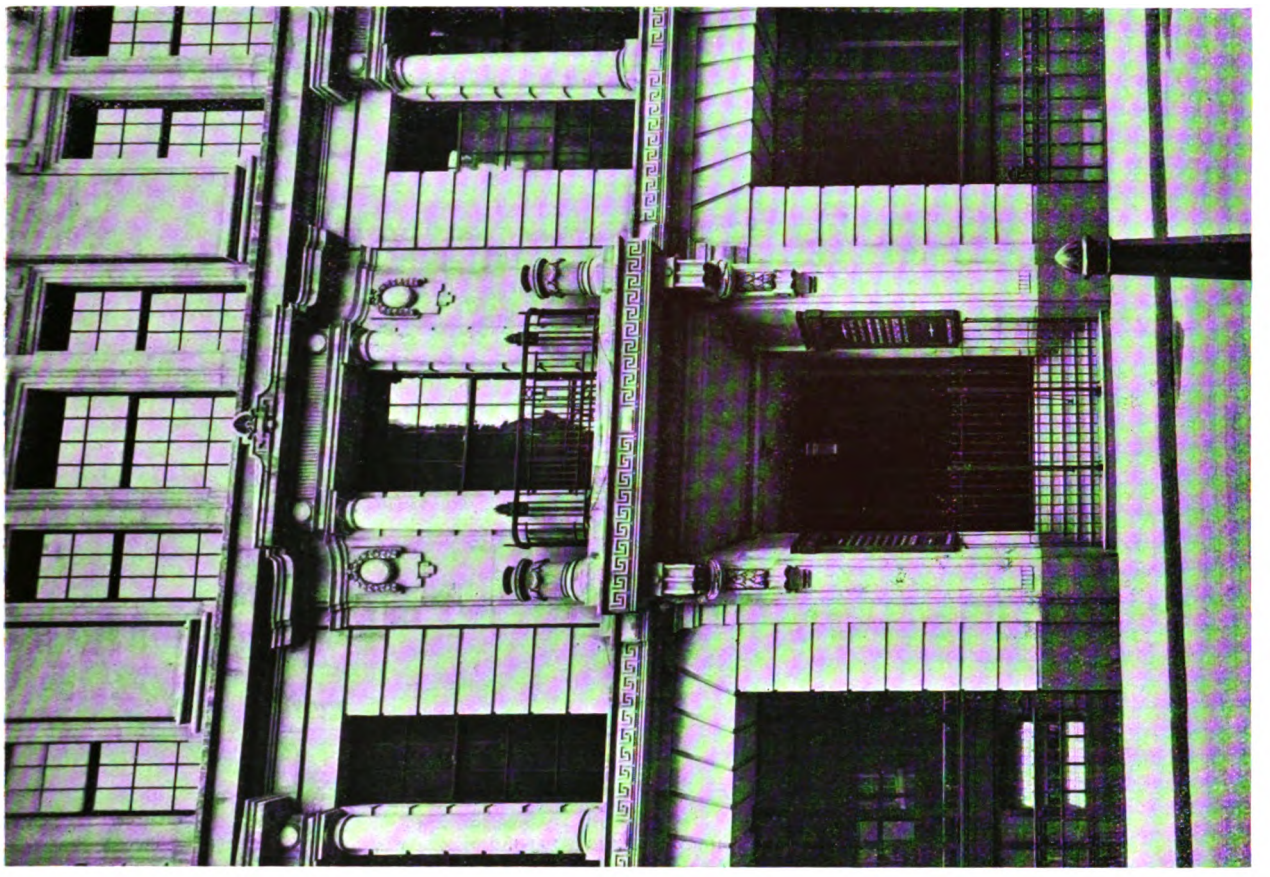
Mr. Harvey then proceeded to discuss the work done centuries ago in Egypt, where the pure primary colours of the ancient architecture are absolutely in harmony with the landscape, where strong effects are the rule. Every object tells as a flat plaque of colour inlaid against the colours of neighbouring objects or against the sky, which although a light blue, looks just as solid as anything else in the landscape.

These climatic conditions have encouraged certain forms of structure and colour in Saracenic architecture, where the shapes of domes and minarets and of crested parapets have been designed to weave the colour of the sky into the architectural composition.

In Ancient Greece the buildings and statues of solid marble were treated with a surface coating of pigment of the same pure and vigorous hues as had been used in Egypt. Owen Jones gives a list of primary colours,

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ENTRANCE DETAIL FROM FENCHURCH STREET.



FACADE TO LEADENHALL STREET.

FURNESS HOUSE, LEADENHALL STREET, AND FENCHURCH STREET.

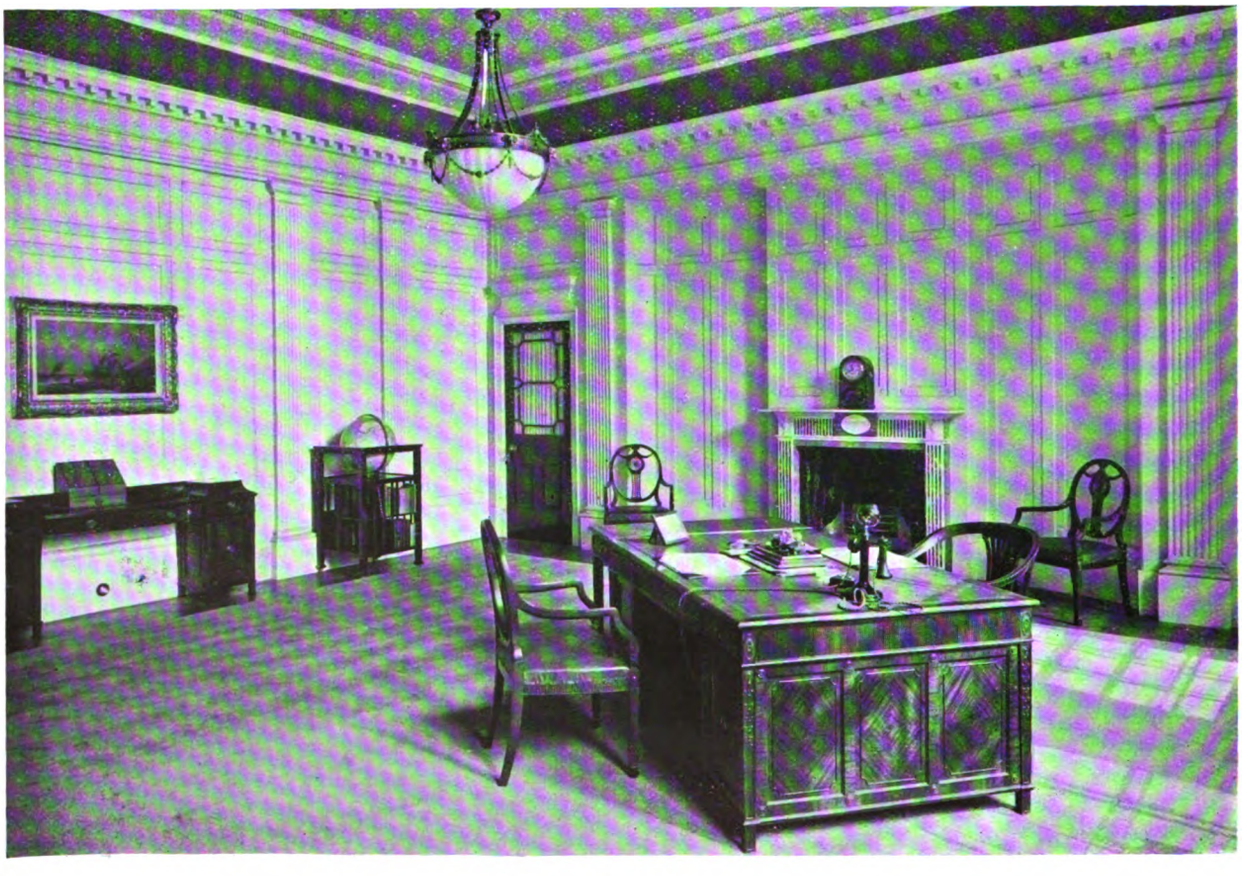
M. E. COLLINS, ARCHITECT.

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LARGE HALL LOOKING SOUTH.



CHAIRMAN'S ROOM.

FURNESS HOUSE, LEADENHALL STREET, AND FENCHURCH STREET.

M. E. COLLINS, ARCHITECT.

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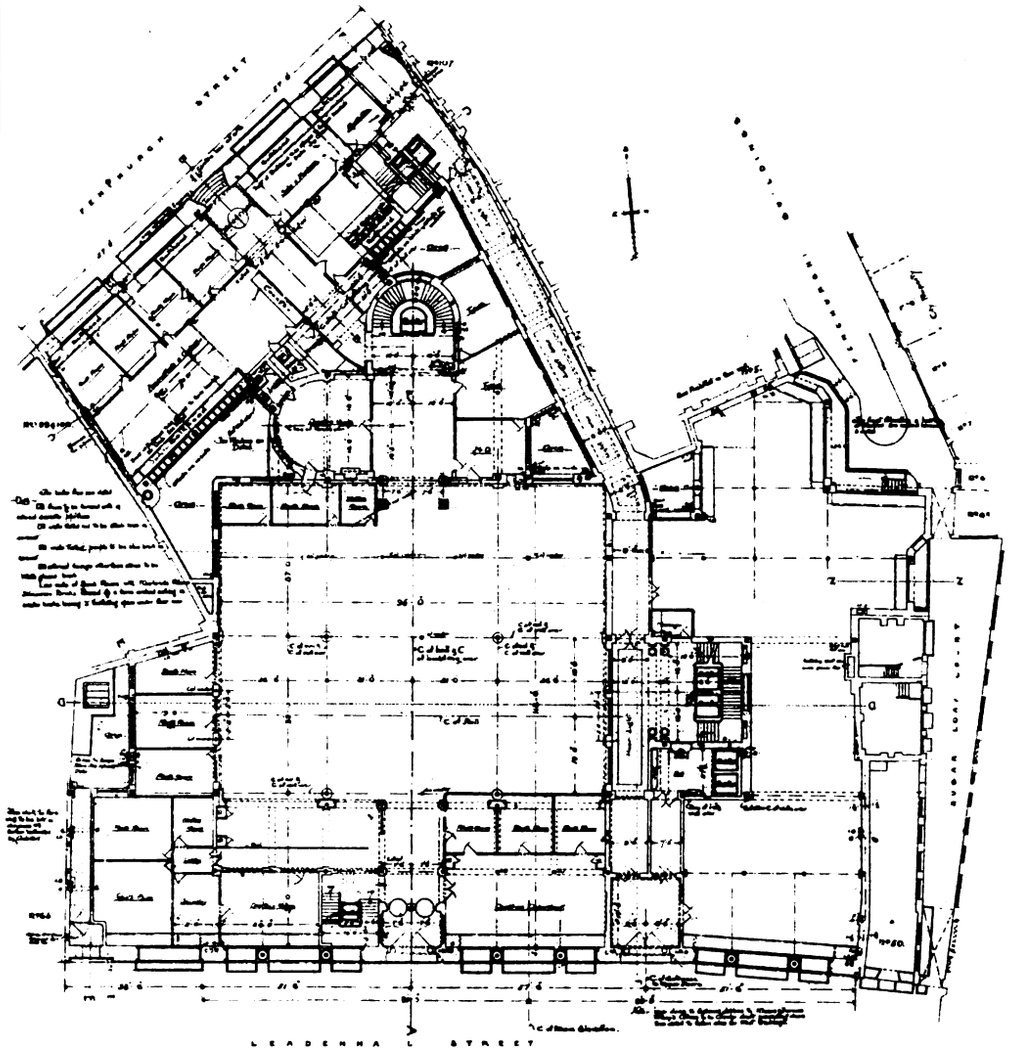
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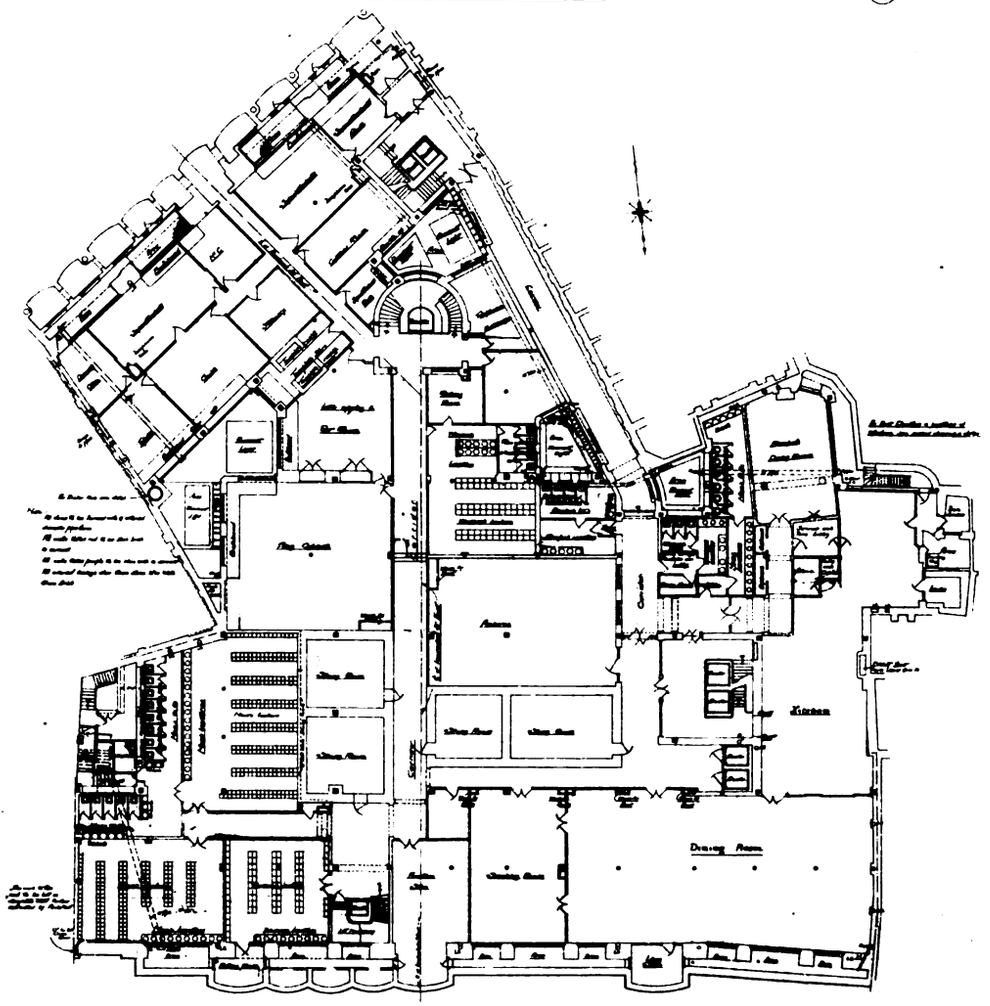
(3.)

NEW BUILDINGS LEADENHALL STREET E C

(2)



GROUND FLOOR PLAN.



LOWER GROUND FLOOR PLAN

PHOTO-LITHO. SPRAGUE HAYCOCK (PRINTERS) LTD 69 & 70 DEAN STREET, LONDON, W.1

FURNESS HOUSE, LEADENHALL STREET, AND FENCHURCH STREET.

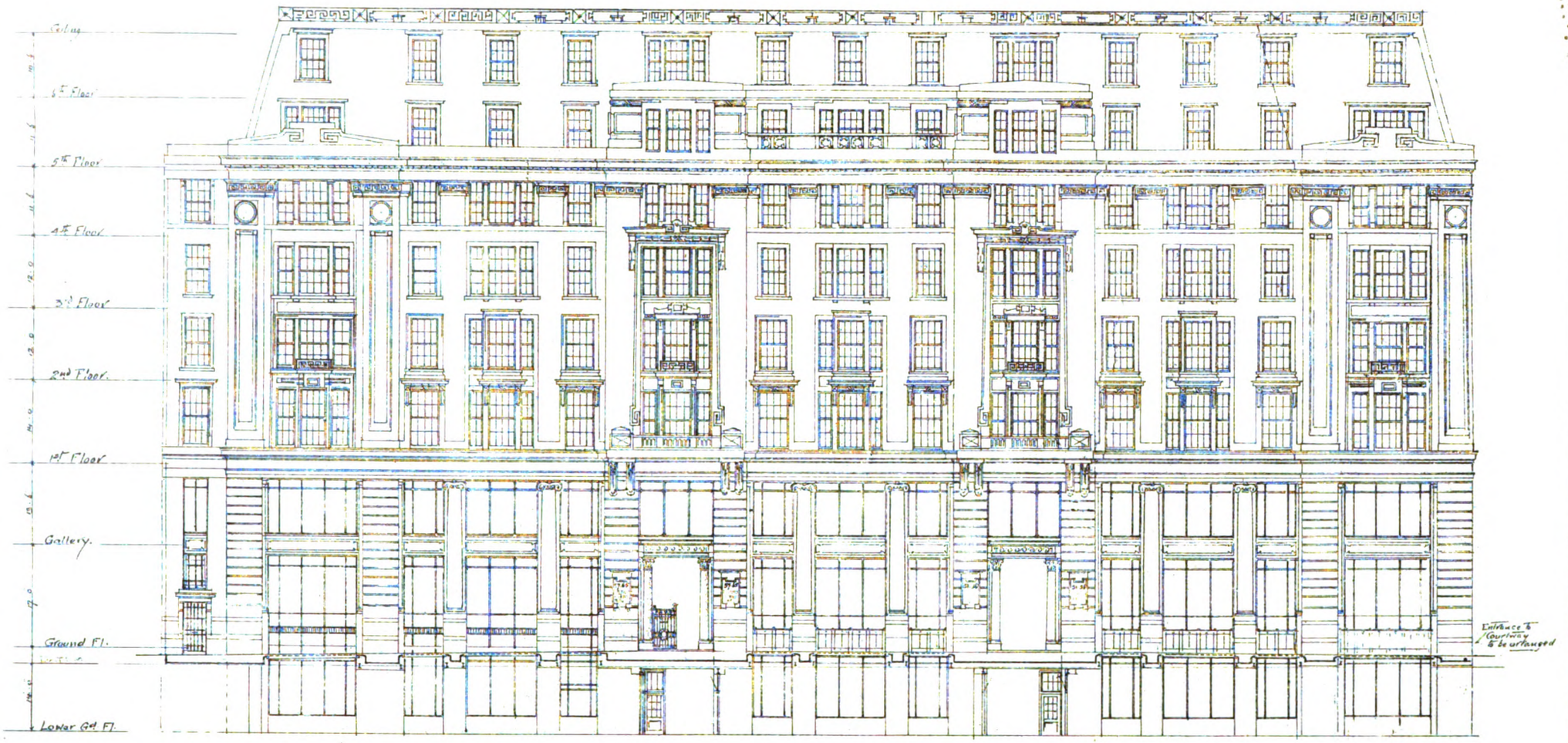
M. E. COLLINS, ARCHITECT.

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NEW BUILDINGS LEADENHALL ST & FENCHURCH ST E.C.

16.



ELEVATION IN LEADENHALL ST

M.E. Collins, Architect 61 Old Broad St E.C.

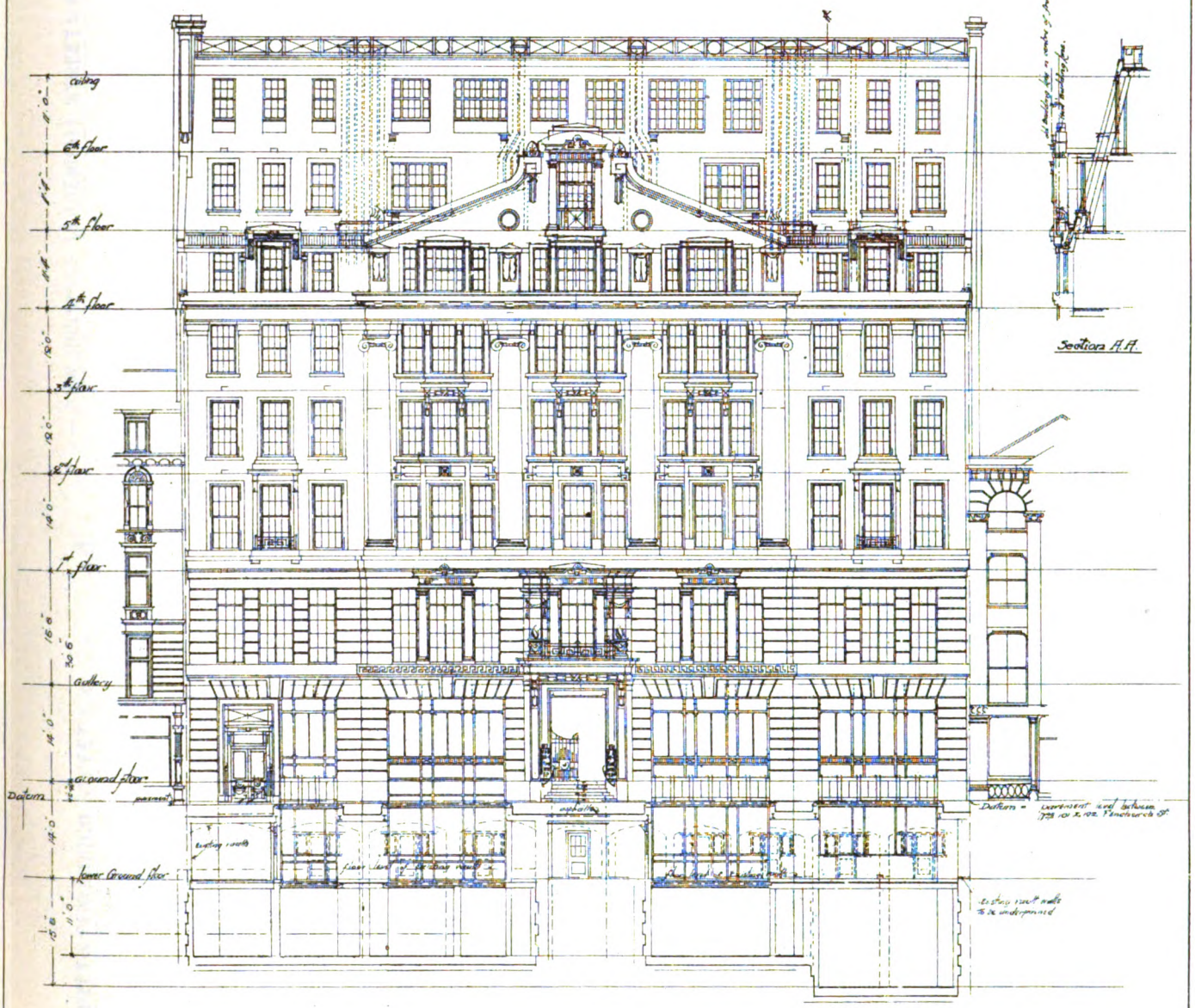
PHOTO-LITHO. SPRAGUE-HAYCOCK (PRINTERS) LTD. 69 & 70, DEAN STREET, LONDON, W.1.

FURNESS HOUSE, LEADENHALL STREET, AND FENCHURCH STREET.

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17.

NEW BUILDINGS. LEADENHALL ST & FENCHURCH ST E.C.



ELEVATION IN FENCHURCH ST

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FURNESS HOUSE, LEADENHALL STREET, AND FENCHURCH STREET.

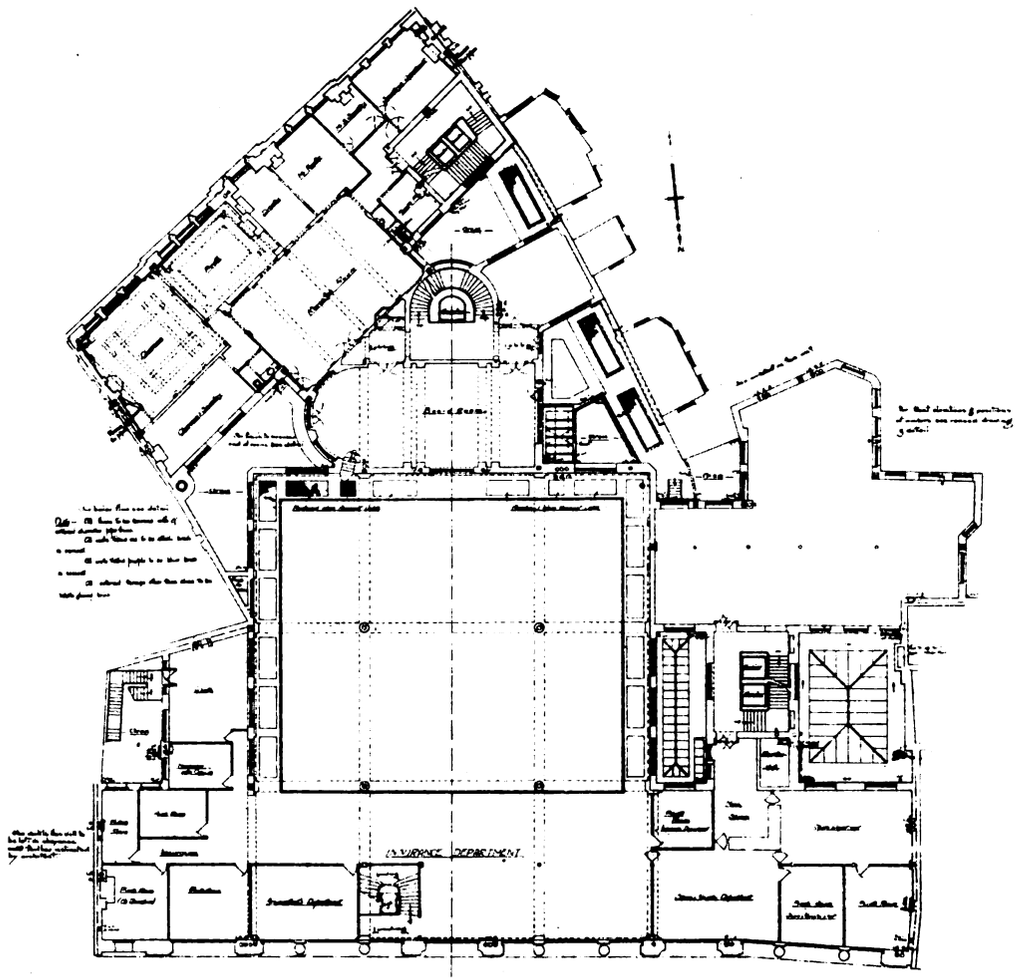
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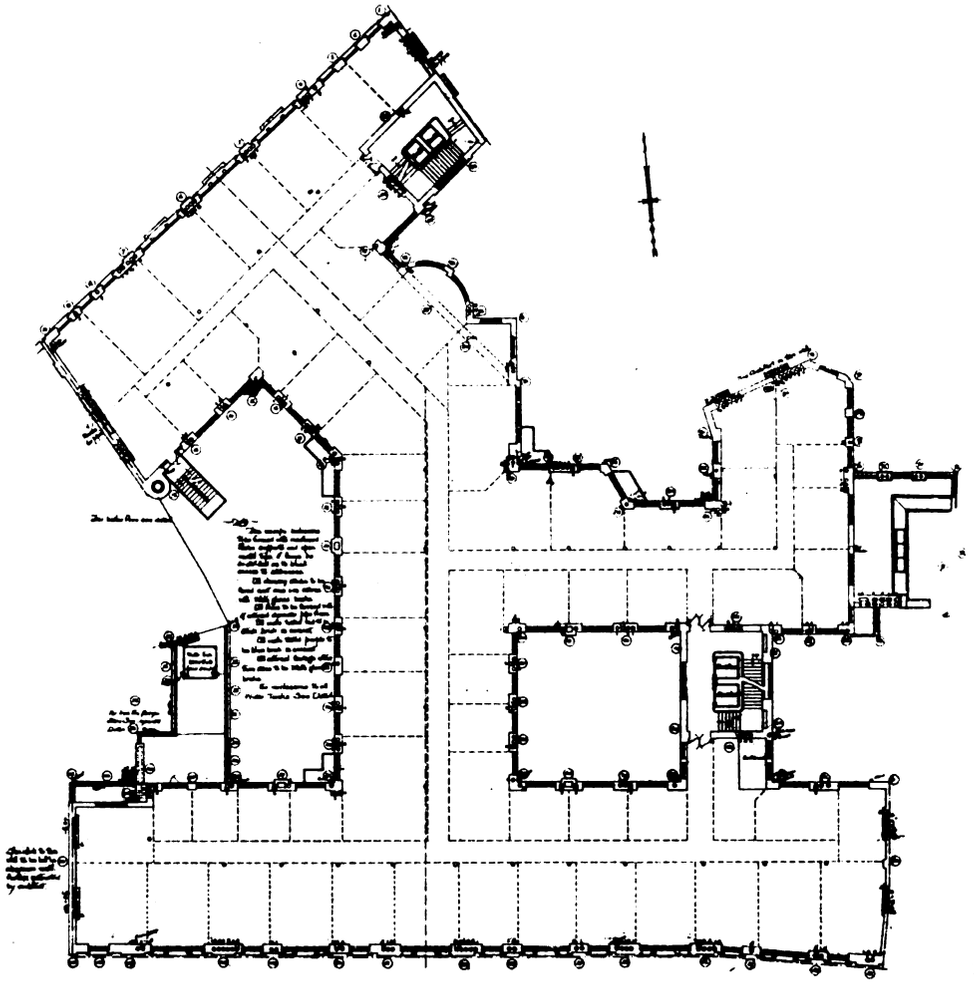
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— NEW BUILDINGS LEADENHALL STREET & FENCHURCH STREET E.C. — (4)



— GALLERY PLAN —

— NEW BUILDINGS LEADENHALL STREET & FENCHURCH STREET E.C. — (7.)



— THIRD FLOOR PLAN —

PHOTO-LITHO. SPRAGUE-HAYCOCK (PRINTERS) LTD 69 & 70, DEAN STREET LONDON W.1

FURNESS HOUSE, LEADENHALL STREET, AND FENCHURCH STREET.

M. E. COLLINS, ARCHITECT.

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LARGE HALL LOOKING NORTH.



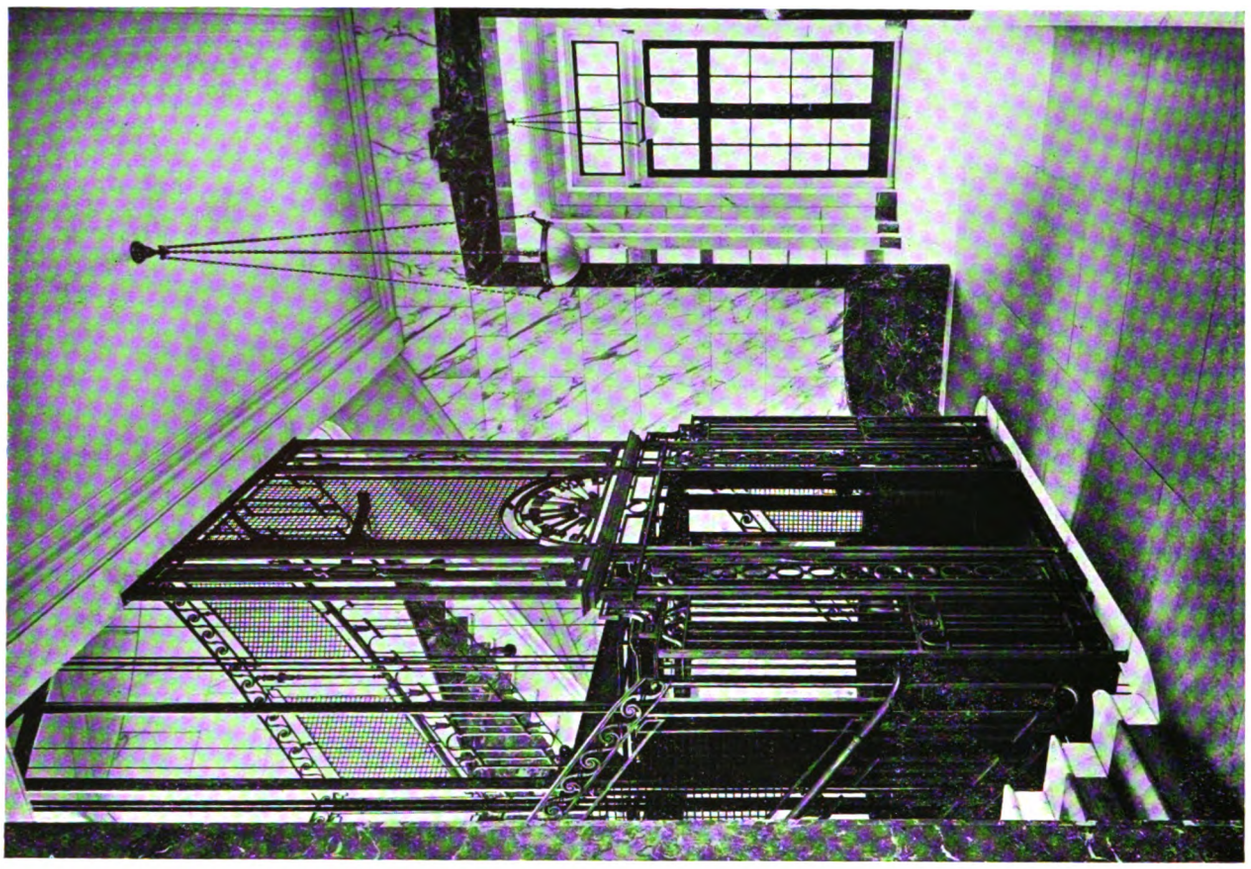
BOARD ROOM.

FURNESS HOUSE, LEADENHALL STREET, AND FENCHURCH STREET.

M. E. COLLINS, ARCHITECT.

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CIRCULAR STAIRCASE.



VESTIBULE TO GENERAL OFFICES.

FURNESS HOUSE, LEADENHALL STREET, AND FENCHURCH STREET.

M. E. COLLINS, ARCHITECT.

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together with black, white and gold, as having been used in each country. Greece had not the same climate as Egypt, and can be horribly cold and wet in early spring. It has more cloud and mist to soften the distance, but brightness and light predominate and make the glare from white marble distinctly objectionable. Ornamentally coloured terra-cotta seems to have been used at the eaves of some primitive temples. Fragments of architectural painted tilework, supposed to date from the seventh century B.C., were found at the shrine of Artemis Orthia, the goddess of Sparta, in the excavations of 1908. The displacement of the sombre and permanently coloured terra-cotta eaves tiles by marble tiles decorated with gayer, though fugitive, colours seems to have been an instance of the interplay of structure and colour in which the beautiful triumphed over the logical.

In Roman times pigment was used side by side with marble plating, and in both materials a large-handed type of design is observable. Colour decorations were often more sketchy and flimsy than in Greek or Egyptian work, and the outlines were sometimes left as indefinite brush strokes instead of being precisely cut as in the older styles. The colours selected were often no longer pure primaries, orange being used for yellow, purple or red, and so on, a concession, perhaps, to the still more moisture-laden climate. The use of pilasters was developed by the Romans in some buildings, and the seeds were then sown of a style of architecture in which the imitation of columnar orders was to introduce the division of wall spaces into constructional ribs and decorative panels.

From Roman times onwards architecture splits up into two camps corresponding to the types of the shell and the skeleton.

Eastern architecture retained its regard for the wall as a single shell built to the required shape, whether in straight lines or curved. Western architecture perfected a style in which the column or the pilaster or the rib and buttress were to perform or affect to perform all the work, while the intervening panels were considered as surfaces of little or no structural value. These panels between the pilasters or ribs were often replaced either by large windows or by naturalistic paintings, into which the spectator looks as if through a door or window, since they sometimes include the representation of clouds and sky, shadows and other details of aerial perspective, destructive of any sense of the presence of the wall upon which the painting has been applied.

In England the whitewashings by churchwardens and the scrapings and repaintings of zealous "restorers" have whittled away the evidence of Gothic colour-work as applied to masonry, but enough remains to show that colour-washes were often applied to exteriors, and almost invariably to the inside of buildings.

When the Renaissance of Roman architecture followed the Gothic the rib and panel system was never completely shaken off. In the interiors of Renaissance buildings the elaborate colour schemes of the great painters, who gloried in depicting figures in motion and in the accurate rendering of shadows and perspective, left the architects no alternative.

If they did not suggest structure with a framework of pilasters, entablatures and ribs, the constructional aspect of architecture would have been banished altogether, and the whole building left without apparent support.

In Byzantine architecture structure and colour are fitted to one another more directly, the walls being designed to present the maximum of smooth surface on which to display an expanse of veined marbles below and a sea of golden mosaic on the vault above. Where columns are introduced they are of fine coloured marble, and are used without reference to the rules of classic trabeated architecture, but as veritable supports required to carry the upper parts of the building.

The colour scheme in a Byzantine church frequently included figure subjects, but they were treated in such a fashion as to leave the expression of the structural value of the wall unimpaired. The figures are nearly always depicted in simple attitudes, and are drawn without perspective or shading, except of the most rudimentary order. They count for what they are: just so many patches of beautiful varied colour on the walls or vaults. What they lack in animation they gain in solemnity and in fitness as integral parts of the architectural scheme.

Once allow naturalistic figures to be introduced into a Byzantine building and the architectural *ensemble* is utterly destroyed.

Bentley's wonderful cathedral at Westminster is going through an uncomfortable process at the present time. Too much marble decoration has already been erected to be ignored, and much brickwork, beautiful in itself, remains unclothed, clashing with the marble in colour and texture under the rather melancholy gleam of the pale green windows. The windows round the apse are the principal villains of the piece, and steal all the colour out of the magnificent golden onyx columns of the baldachino.

Discussion.

Professor Gerald Moira, in proposing a vote of thanks, regretted the lecturer had not told them a little about what should be done to-day—in their dear old London, for instance. In the recent R.I.B.A. colours competition, for which he (Professor Moira) acted as one of the adjudicators, some of the coloured drawings were very smart and the plans clever, but the competitors showed a very vague idea of how to tackle the subject in a broad way. When it came down to construction of colour and the realisation of tonality there was an awful lack. As for London, he felt certain that if the streets had blocks of colour at stated intervals they would be far more interesting. In his opinion the present condition of the west front of St. Paul's was spoiled by the soot obliterating the detail of its lower half.

Mr. Halsey Ricardo thought Mr. Harvey had proved the desire for colour was innate in mankind. London unhappily was devoid of colour. We seem to have reached a curiously sophisticated state of mind as to what our buildings should look like. There was much to be said in favour of lime-wash both as an enhancement and as a preservative. Yet if Professor Lethaby were to whitewash Westminster Abbey, as was originally done, there would be a huge outcry. One of the troubles about colour to-day was that it had been captured by the painters. The big terraces skirting Regent's Park offered a fine opportunity for the use of colour as a complete entity.

Mr. William Woodward maintained that the deposit of soot on the lower part of St. Paul's provided the very colour note that was wanted. Anyone wishing to know what colour could do should go to Granada and study the Court of Lions of the Alhambra. They all admired the magnificent art of Westminster Cathedral. Unfortunately the application of colour and marble, with the exception of one or two beautiful chapels, had proved an utter and permanent failure.

Mr. E. P. Warren differed from Mr. Woodward, and expressed the opinion that the present patina of foul grime on St. Paul's was a grievous misfortune which filled his soul with depression. In Paris the householders were compelled by law to wash the face of their buildings. The same regulation ought to be introduced into London. William Morris once remarked that he would have given anything to see a fourteenth-century cathedral the day after the scaffolding was taken down. Our cathedrals must have been a blaze of colour. He could not see why we should not introduce an immense amount of colour in the streets.

Major Corlette hoped the study of the history of colour would be undertaken with the purpose of finding out what were best to be done at the present day. A really valuable school might be created which understood what mural decoration really was.

Mr. R. Anning Bell quoted, as an example of the benefit to be derived from washing our structures, the Victoria Memorial in front of Buckingham Palace. People ought to look at these questions with their own eyes, as many of the current notions were absolutely false.

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Personally he would like to see the figure sculpture on the War Office painted a cheerful red. If colour were introduced into our streets it must be in the mass and ought to be controlled by some central authority.

Mr. Percy J. Waldram said that scientists have not only been able to imitate daylight perfectly but could obtain under any inside conditions any given outside conditions. For instance, at Bradford it was possible to reproduce the exact daylight of Bombay. Colour could not be studied scientifically, it could only be really studied by artists. No scientific analysis would be as valuable in producing a great result as trusting to careful educated good taste.

Mr. F. R. Hiorns contended that London buildings, unlike those of Egypt and Asia, were not intended for colour. Architects of to-day were themselves responsible, for they did not in the design of their buildings provide opportunities for the application of colour.

Mr. Arthur Keen, in putting the vote of thanks, said he thought Mr. Harvey had very well justified his position as Owen Jones Student. The only defect was that the paper had not let them into the secrets of what was to be done now here in London. Perhaps that subject had been reserved for some future occasion. Anything in the direction of the application of colour to buildings would have to be attempted under due control. The characteristic of London architecture was that every man was a law unto himself. If colour was dealt with in the same terms one would be terrified to think of what the result might be. As a matter of fact there was a great deal of colour in the streets already, contributed by the shop windows, the dresses and the advertisements. The suggestion that our buildings should be washed down every year or two was an expression of weakness.

The vote of thanks was passed with acclamation.

Mr. William Harvey, in the course of his reply, said that colour in London provided a very difficult problem. To produce a good effect in this country all intense brightness would have to be subdued to some extent. The well-known house designed by Mr. Halsey Ricardo in the Addison Road was bright for London, but it was not bright at all compared with examples abroad. The tile-makers in hot countries would choose far brighter and more startling colours.

The annual dinner of the Royal Institute was held on Wednesday, May 24, at Princes' Restaurant, Piccadilly, W. Mr. Paul Waterhouse, M.A., F.S.A., President, was in the chair.

Among those present were: The Right Hon. H. A. L. Fisher, P.C., M.P. (President of the Board of Education); the Right Hon. Lord Justice Younger; Sir Aston Webb, K.C.V.O., C.B. (President of the Royal Academy); Sir Philip Magnus, Bart., M.P.; the Very Rev. W. R. Inge, D.D. (Dean of St. Paul's); Major H. J. de Courcy Moore (Sheriff of London); Sir Anthony Bowlby, K.C.B., K.C.M.G., K.C.V.O. (President of the Royal College of Surgeons); Sir Amherst Selby-Bigge, K.C.B. (Permanent Secretary of the Board of Education); Mr. G. Mills McKay (Sheriff of London); Sir Thomas Brock, K.C.B., R.A.; Lieut.-General Sir George Macdonogh, K.C.B., K.C.M.G. (Adjutant-General to the Forces); Monsieur A. Louvet (Président de la Société des Architectes Diplômés par le Gouvernement); Sir Alfred Hopkinson, K.C.; Mr. John W. Simpson, PP.R.I.B.A. (Croix de la Légion d'Honneur); Sir Hercules Read (President of the Society of Antiquaries); Sir Banister F. Fletcher (Officier de la Légion d'Honneur); Monsieur Alphonse Richardière (Vice-President de la Société Centrale des Architectes Français); Sir Philip Pilditch, M.P.; Sir Edwin L. Lutyens, R.A.; Sir James Carmichael, K.B.E.; Mr. Frank Dicksee, R.A.; Sir Charles T. Ruthen, O.B.E. (Director-General of Housing); Mr. G. W. Lawrence, J.P. (the Mayor of Westminster); Mr. W. B. Worthington (President of the Institution of Civil Engineers); Mr. J. S. Highfield (President of the Institution of Electrical Engineers); Mr. J. W. Lorden, M.P.; Mr. J. Storrs (President of the Institute of Builders); Dr. H. S. Hele-Shaw (President of the Institution of Mechanical Engineers); Mr. E. S. Beal, C.C. (Master of the Plumbers' Company); Mr. J. H. Blizard (President of the Institute of Sanitary Engineers); Major-General H. F. Thuillier, C.B., C.M.G. (Commandant, School of Military Engineering, Chatham); Mr. Edwin J. Sadgrove (President of the Society of Architects); Mr. W. G. Newton, M.C. (President of the Architectural Association); Mr. E. Fiander Etchells (President of the Concrete Institute); Mr. James S. Motion (President of the Auctioneers' and Estate Agents' Institute); Sir Percy Simmons, K.C.V.O.; Mr. G. Topham Forrest (Architect to the L.C.C.); Mr. A. J. Forsdike (Past President, National Federation of Building Trades Employers); Mr. H. D. Searles-Wood (Vice-President); Mr. Arthur Keen (Hon. Secretary); Major Harry Barnes, M.P.; Mr. L. Cope Cornford; Mr. W. R. M. Lamb (Secretary, the Royal Academy); Professor A. M. Hind (Slade Professor, Oxford); Mr. F. W. Pomeroy, R.A.; Mr. R. F. Bayford, K.C.; Mr. Roland B. Chessum (President, London Master Builders' Association); Mr. H. E. Knott (President, Timber Trade Federation of the U.K.); Councillor Geo. Elmer (President, London District Council, National Federation Building Trades Operatives); Mr. G. L. Pepler (Ministry of Health); Mr. Greville Montgomery, J.P.; Mr. George Hicks (General Secretary, Amalgamated Union Building Trade Workers); Mr. J. Murrey (Secretary, London District Council, National Federation of Building Trades Operatives); Professor S. D. Adshead (Vice-President); Mr. A. A. Hudson, K.C.; Major Richard Lloyd George; Major-General Sir Fabian Ware, K.B.E., C.B., C.M.G.

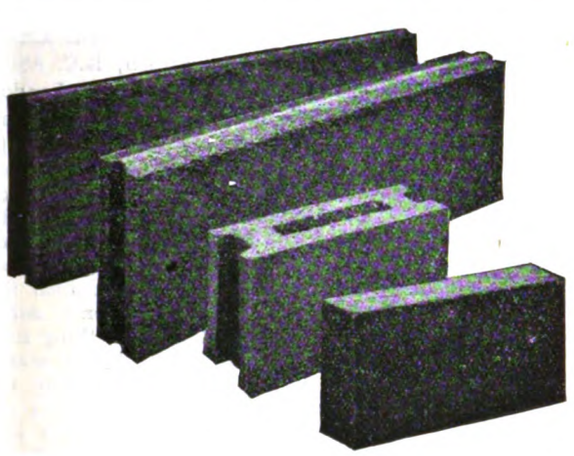
The following Presidents of allied architectural societies were also present: Mr. Percy Thomas, O.B.E. (South Wales Institute of Architects); Mr. T. R. Melburn (Northern A.A.); Mr. J. Alfred Gotch, F.S.A. (Northants A.A.); Mr. Edward P. Warren (Berks, Bucks, and Oxon A.A.); Mr. Alan E. Munby (York and East Yorkshire Architectural Society); Mr. William Keay (Leicester and Leicestershire Society of Architects); Mr. G. B. Mitchell (Aberdeen Society of Architects); Mr. Francis Jones (Manchester Society of Architects); Major C. B. Flockton (Sheffield Society of Architects).

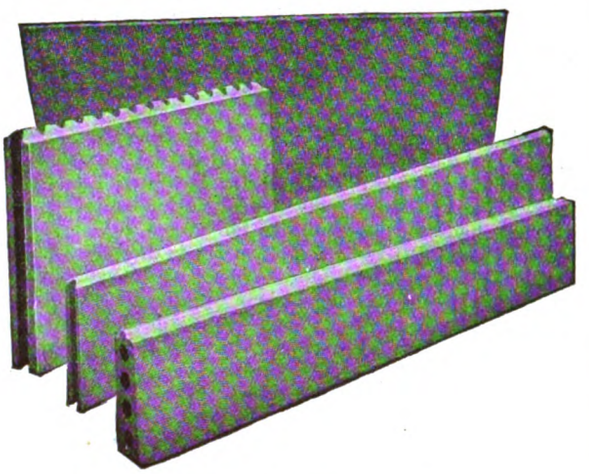
The toasts of "The King, our Patron," and "The Queen, Queen Alexandra, the Prince of Wales, our Honorary Fellow, and the other Members of the Royal Family" were proposed by the chairman and musically honoured.

The Right Hon. H. A. L. Fisher, P.C., M.P. (President of the Board of Education), proposed the toast of "The Arts," in the absence of the Earl of Midleton, K.P., P.C. Many of the people of this country, he said, became during the stress and strain of the war accustomed to disagreeable substitutes. He was a disagreeable substitute. He was speaking in the place and character of a very distinguished statesman, Lord Midleton. He asked himself what Lord Midleton would have said upon the present occasion. As a member of the hereditary branch of the Legislature, he would have reminded them that Bolshevism was fatal, Socialism injurious, and democracy perilous to the arts. He would have reminded them that while architects build houses, peers of the realm live in them; that while painters paint pictures, peers of the realm buy them. As an ex-Secretary of State for India, Lord Midleton would have commented, in adverse terms, upon the absence of an Oriental section in the National Gallery. He would have reminded the audience that India, China, Japan, even, had an art, and finding himself in the presence of the President of the Royal Academy, he would have ventured to suggest that some means should have been taken for remedying that deficiency. Then, as ex-Secretary of State for War, he would have reminded them of the famous picture in the present Royal Academy exhibiting the deterioration of military millinery from the point of view of the fine arts. He would have associated himself with the policy advocated for clothing the Guards in the familiar red. Speaking as a connoisseur of the arts, he would undoubtedly, after careful comparison of the claims of poetry, oratory, architecture and painting, have come down on the side of architecture. He would have reminded them that the architect was fortunate because he lived in two worlds—he lived in a world of business and in the realm of the beautiful and the ideal. On the one hand, they were close calculators of figures, and could tell at a glance the cost of a house. Their estimates were invariably exact and close to the provisional anticipation. On the other hand, they lived in dreams and followed the bent of their own fancy. They embodied in material form the aspirations of different classes of society, different races, different epochs, and whereas other forms of art might rapidly perish, the architect had always his consolation in the relative durability of his art—sometimes to flatter, sometimes to distress him. Finally, Lord Midleton would have addressed them as an Oxford man, and in that capacity he would

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undoubtedly have quoted from Aristotle, and have reminded them that while the architect was undoubtedly the most skilled deviser of houses, the best critic was the person who was condemned to live in them. It was a great privilege for him (the speaker) to be able to propose that toast. Art was an essential ingredient in sound education, and he associated the toast with the name of the distinguished architect who was President of the Royal Academy, Sir Aston Webb. They knew Sir Aston as one of the most accomplished architects of their age and country, and as a most distinguished President of that great Society which holds up before the mind and imagination of British people the ideal of the beautiful in life.

Sir Aston Webb, K.C.V.O., C.B., in his reply, said that Mr. Fisher had a wonderful imagination, and had told them everything Lord Midleton was going to say. Personally he would like to possess an imagination of that sort. Architects had to give estimates for houses, and he thought as a rule they did it very well; sometimes they might exceed, sometimes they might be less, but they could never be quite sure what it would be. Architects were much obliged to the public for living in the houses built—that was a delicate compliment that he always recognised and appreciated, for the more houses the public want the better architects will be pleased. Owing to circumstances over which architects had no control, building was in a very bad state indeed at the present time. Art was a very large question. There was a certain number of people to whom art seemed to be indigenous, and therefore it was quite unnecessary for him to say anything about art to them; there were others to whom art seemed to be nothing at all, and therefore it seemed quite useless to say anything to them. There were very few people to whom it was worth while saying anything at all about art. Art was one of those things one could not talk about. To the true artist who had made a study of his craft and knew it thoroughly the work he did in a day gave him much more happiness than the dinner he ate at night. But to the lover of art, art came as a silent and profound influence, and he felt the better for it, although he might not know exactly how. Artists had certain qualities which must be born in them: they must have enthusiasm, a knowledge of mystery and of power and of colour—and if artists had not those qualities no power on earth could give them. On the other hand, the qualities some artists might have could be increased and enlarged and strengthened by education, and it was in that direction that the Royal Institute of British Architects and the art schools were useful in enabling men to make most use of the qualifications with which Nature had happily endowed them. Beyond that little could be done. Art, if it was to live, must be idealistic and realistic. The ideal side of it must come from the artist's own inner consciousness and feeling. The realistic portion might be enlarged through education, and so art in its highest must be an ideal. There was a sort of idea that artists lived a life by themselves, and had not much in common with other people. No mistake could be greater. Many of the great artists in the past were great men of the world, such as Leonardo da Vinci, Lord Leighton, and others, who were men of the world and great artists at the same time. In France at the end of the eighteenth century, during those fearful times of revolution, the artists of France made and prepared a plan for the beautification of Paris, and when Paris was reconstructed in the middle of the past century that plan was made use of. In 1914, when the war broke out, the artists of this country enlisted at once. The studios were emptied in a few days, except for a few who were too old or infirm to take part. The R.I.B.A. used the services of those who were left, and made one of the finest surveys of London, which was the best civic survey made up to the present time. He was extremely sorry it had never been finished. It would be a magnificent thing for them to do so and to hand the survey over to the authorities. The London Society prepared a plan for the arterial roads and improvement of the bye-pass roads out of London; that plan was completed, and after the war the authorities turned to that plan and a large number of arterial roads were now actually being carried out. Then the young artists who went out. What about them? The Royal Academy schools lost 35 young fellows, and some of the very best; the Architectural Association schools lost 90, many of their best; the R.I.B.A. lost 230 from its membership and students; the Artists Rifles lost over 2,000. Lord Cavan, when unveiling the memorial to that regiment at the Royal Academy, said there was no record finer than that of the Artists Rifles. He did not mention these facts in a feeling of pride. It was only right that it should be known what artists had done during the war. If in any war there was ever an ideal it was the last war, which was fought for the ideal of protecting a people who could not protect themselves and the ideal of right against might. As Daniel when a prisoner would look through the window towards Jerusalem because it held all his ideals, so artists ought to open their windows towards their Jerusalem. If they strove as far as they could they would achieve something for art. They would be happier themselves, and perhaps one or two geniuses might do something that would astonish the world.

The toast of "The Royal Institute of British Architects" was proposed by Sir Alfred Hopkinson, K.C. After seeing many fine things abroad, he had come back to London only to think what a fine city it had become. Oxford, when he went there last, seemed more beautiful than ever, largely owing to work by members of the Institute. No one admired the work of many architects more than he did. There were two characteristics which he hoped would always mark the members of the profession. The first was adaptability, or an ability to supply the client with what he really wanted—not to thrust the highest art upon the client. The second characteristic was common-sense, doing under the circumstances of the moment the best thing that could be done. Another thing which he hoped would always exist was idealism—the imagination that made the idea of a great building something that would endure for all times and as great as the greatest production of any art. A great building was a thing which would exist for all time, and would appeal to future generations. Architects had the opportunity of producing things which would be seen by posterity, an opportunity which was denied to those who practised in the law; the works of the architect would be a record for all time, and that was one of the factors which made the profession of the architect so much to be envied. Their President showed in his work adaptability, in spite of having some uncommonly difficult jobs. Mr. Waterhouse had never forgotten his ideals.

Mr. Paul Waterhouse, in his reply, said the whole of mankind was divided into three parts; architects, clients, and possible clients. The motto of the city of Glasgow was "Let Glasgow flourish." Some years ago the patriarchs thought it would be a good thing to test the intelligence of the little children on its meaning, and one of them wrote, "Let Glasgow flourish by fair means or foul." He (Mr. Waterhouse) had been put into the chair by the members themselves. He confessed to being a whole-hearted Institute man, absolutely prejudiced and with his mind made up. Every schoolboy believed his own school to be the best. What if there was no Institute at all? That was a good way of looking at the matter for anyone doubtful. There were some who said it was no use whatever. Architects abroad had told him a society was no use in theory and often broke down in practice. But they confessed to being pleased to take advantage of the Scale of Charges. The way to break a clique, if a clique existed, was by entering into the body themselves. He wondered if they realised what the Royal Institute was doing in the way of education. For years he had been chairman of the Board of Architectural Education, and had conceived an immense admiration for its work. Nearly all the architectural schools within its reach are willingly subscribing to the conditions which the Institute made as to the entrance of students to the Associateship. In the regulation of competitions the Institute did incalculable service. Then there were their publications, their international duties, their Practice Committee. They only had one enemy, and that was apathy. The members could vote their representatives on to the Council: for Heaven's sake let them do so. Architects were asked from time to time by their clients and members of the public if they could give advice as to whether they were to save their money for a further fall in prices. Many of his friends were very anxious to have a public expression on the point; it was dangerous to prophesy, but it was never dangerous to give an honest opinion. He had been thinking a great deal about this matter. The conclusion which he had come to, and to which others had come to, was that, wise as the building public had been in reserving their money during the past year, the time was either here or very closely at hand when the liberation of that money would be a wise policy on their part. There might be a further fall in prices, but if anybody had a large enterprise on hand he ought to understand that his first-class securities had risen. If there were to be further small falls in building prices, a contract could be devised by which the owners would get the benefit. There had been great falls already, and there was a further fall of 2d. per hour in the wages of the operatives coming next month.

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Mr. Waterhouse then paid a tribute to Mr. Arthur Keen, their honorary secretary, to the work of the R.I.B.A. staff, from Mr. McAlister down to the boys in the office. In conclusion he asked the meeting to be "unified" that night and leave controversy alone. It was for those present to make the Institute mightier still.

Mr. John Slater (Past Vice-President) proposed "The Guests."

This was responded to by the Right Hon. Lord Justice Younger, the Very Rev. the Dean of St. Paul's, and Monsieur Albert Louvet (President of the Société Centrale des Architectes Diplômés par le Gouvernement).

M. Louvet said he had the honour to convey the cordial greetings of the Société Centrale des Architectes diplômés par le Gouvernement. He wished, in the first place, to give thanks for the great honour that had been done both to himself and to his Society in nominating him last year as a Corresponding Member of the Institute. It was only a few days ago that several of the Institute Members were in Paris for the annual meeting of the Union Franco-Britannique, including their eminent confrère, Mr. John W. Simpson (who had been elected President of the Union for 1923), and also the indefatigable Mr. Cart de la Fontaine. It was unnecessary to say how happy they in Paris had been to see them, and to show them, in the company of the Director of the Beaux-Arts, the splendid works that their English confrères had sent to the Salon. There was no need to dilate on how useful to architecture and how useful to the two countries were such gatherings between the two Societies. They renewed the union recently created but foreshadowed a long time ago. There was the community of ideas and the fraternity in common action against their barbarian aggressors which had brought them still closer together. There was also that long-established sympathy in the matter of mutual instruction. France had much to learn from England, notably in domestic architecture, whether it was concerned with workmen's dwellings or country houses. England enjoyed in that respect a fund of practical common-sense, of elegant simplicity, which could serve as an example. Had not the English something useful to learn from the French? Doubtless the audience had heard of the considerable effort which had been made in France for the betterment of cheap dwellings and garden cities. Perhaps in these latter they might observe something suggestive of England. They must also have heard of the efforts, which might truly be called heroic, which their French confrères are making for the reconstruction of those regions devastated by the barbarians, efforts which, in spite of enormous difficulties, are improving every day. It is this continual contact which is useful to both nations, and, as they possess neither the same qualities nor the same defects, they are able to complement each other intellectually. They might well have a discussion on the great questions arising out of architectural education. They in France had been very proud to see in the ateliers of the Architectural Association an organisation a little on the lines of the "Ecole Nationale"—the only difference being that there are more young women students in Bedford Square than in Paris and that they take tea there at four o'clock. But both in London and in Paris they work with zeal, one might almost say with passion. These were some of the reasons which rendered useful the happy understanding between their two great societies. That which he represented was, as they doubtless knew, a vigorous and keen society. They generally called it the "Société des Jeunes," although it included amongst its members many grey and even white heads; but it aimed at preserving the enthusiasm of youth, and it followed with interest the activities of the British societies and of those others with which it was in federation. Let them continue to strengthen the bonds which held them together, and they might hope that they will one day extend to all the friendly nations which contributed towards the defence of civilisation and of art.

The congregation of New Bridgegate, Govanhill, have decided to proceed with the erection of a church estimated to cost £10,557.

An inquiry was held at the Council House, Birmingham, on May 24, by Mr. J. C. Dawes, on behalf of the Ministry of Health, into the application of the City Council for powers to borrow £100,000 for the provision of refuse disposal works at Brookvale Road, Witton. The scheme includes the construction of a new canal arm, an eight-cell destructor in two units, with screening plant and belt conveyors, a clinker-crushing and screening plant, and a weighbridge and office.

Correspondence.

Henry Saxon Snell Prize.

To the Editor of THE ARCHITECT.

SIR,—I desire to draw the attention of your readers to the subject set for this prize for the current year, viz.: "A Maternity Home and Infant Welfare Centre." In the cause of social progress these institutions are bound to have an importance in the future which is as yet little realised. Although a comparatively small number of specially designed buildings have been erected (and these are to some extent tentative), most health authorities have established homes, if only in converted premises. In due course, properly designed buildings will be required all over the country, and those architects who have made a study of the subject may well hope to reap the benefit. In this connection, the prize offers a good opportunity for at least the commencement of such a study, and it is hoped that many practising architects will enter as competitors. Indeed, this is much to be desired.

A memorandum setting forth in detail the requirements and also some information of buildings and writings for reference has been prepared and approved by the Board of Architectural Education. A copy of this will be sent to each competitor.

The monetary value of the prize has been raised this year to £60.—Yours, &c., A. SAXON SNELL.

9 Bentinck Street, Manchester Square, W. 1,
May 15, 1922.

Trade Notes.

Sir Cyril Kirkpatrick, Engineer-in-Chief, Port of London Authority, in a paper read before the Institute of Transport, May 17, in reference to Port of London Roads, stated: "On the south side of the Royal Victoria Dock, a new road was constructed in 1917 entirely of reinforced concrete, nine inches thick, on the Walker-Weston system, and this is giving good results."

We regret that in our account of the London Assurance Corporation new offices in King William Street, E.C., which were illustrated in our issue for May 26, we failed to mention that Messrs. Williams, Gamon & Co. (Kaleyards), Ltd., of Chester, were the contractors for the steel windows. In the same description it was not made quite clear that Messrs. W. Aumonier & Son, 84 Charlotte Street, Fitzroy Square, W., executed the whole of the stone carving, as well as the internal woodwork, in this important building.

There was an interesting sequel to the demonstration by Messrs. Kerner-Greenwood & Co., Ltd., at the Building Trades Exhibition of the testing apparatus which we recently described in these columns. On the last day of the show a cylinder of waterproofed cement and sand (2, 1, and 5 per cent. of "Pudlo" brand powder) which had been continuously under a water pressure of 300 lb. per square inch for seventeen days was removed from the machine and broken. The substance of the cement cylinder was absolutely dry, which afforded positive proof that there had been no penetration of moisture into the waterproofed cement mortar.

Mr. Charles Clegg, F.R.I.B.A., of Manchester, who retired in 1919, has died at Aylmers Field, Ringway, Cheshire, in his ninety-fourth year. The funeral took place at Broughton on May 26.

The Ministry of Health have recently sanctioned a scheme for sewering certain portions of Havant, as submitted on behalf of the Council by Major T. J. Moss-Flower, consulting engineer, of Bristol and London. This scheme includes the remodelling of the sewage disposal works. Preparations are being made for an immediate start.

The London County Council last week passed capital estimates for street and other improvements in London under various Acts for the current financial year totalling no less than £673,785. The actual cost of the improvements will be augmented by another £243,000, but this latter sum is payable to the County Council in the shape of contributions from other local authorities. The estimate of the cost of maintaining and improving the drainage system of London for the same period is £1,000,000 on capital account and £710,680 on rate account. For the new county hall, which is to be opened by H.M. the King next month, a building estimate of £650,000 was approved.

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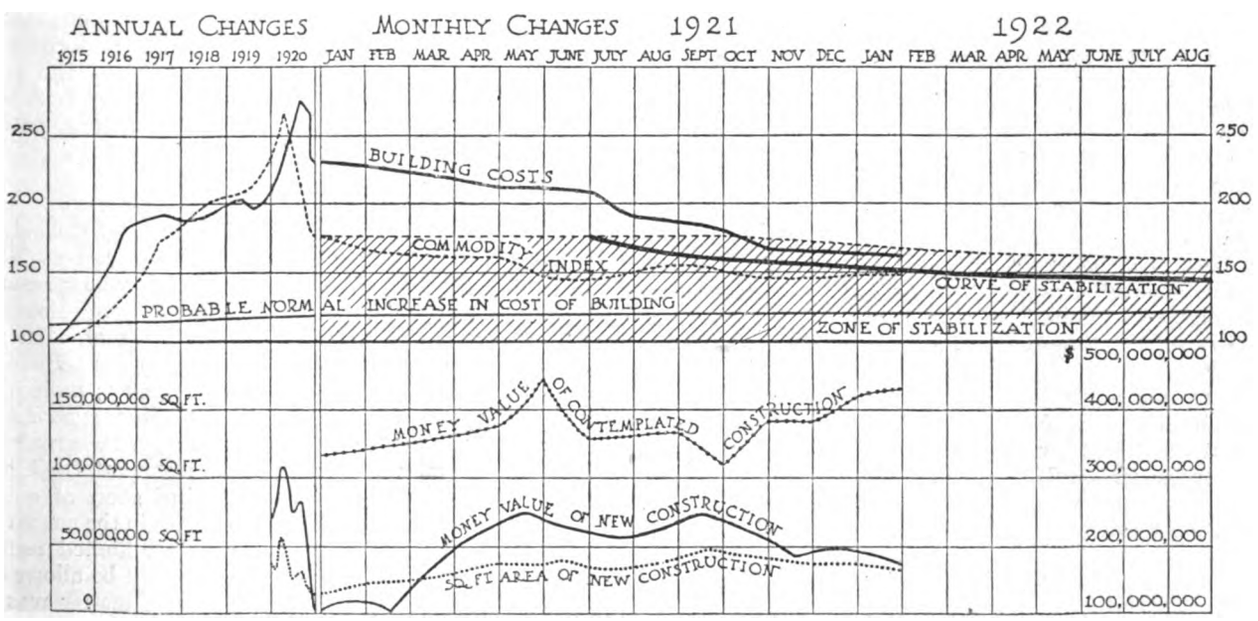
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The Cost of Building.

THE "Architectural Forum" of New York in one of its "Straight Talks to Architects" says that economic conditions have brought about an unusual business situation, for while there was never so much contemplated work, clients are hesitating about building. This applies equally in the case of England, and the remedy which the "Architectural Forum" suggests is the consideration of a monthly chart which it publishes, and a reproduction of which we give below. American committees have been convinced by this chart, in which an index line shows the trend of building costs, another the trend of wholesale commodity prices, and a third represents the curve and area of stabilisation, which indicate the point in the chart at which an owner may safely proceed with building without subjecting himself to the risk of a great deflation in the reproduction value of his building. Lines are also introduced showing the amount of money invested in new buildings and the volume of construction. Our contemporary says that it is not surprising that many building owners hesitate to proceed from the lack of actual information as to future conditions. There is also a general impression that finance for building is difficult to obtain and that conditions of labour and material prices may entail additional expense to those who build now.

What has actually taken place, our contemporary says, is that there has been an unusually rapid deflation of building prices, and that the average man believes this may still continue, but that, while it is true that the average tendency of building costs will be downward for the next few years, it is also true that such deflation will be less marked, and that this period will be one of ups and downs in the market, resulting in a very slow general downward trend. It is also true that there is much more finance now available for building than there was a short time ago. We quote this because it applies word for word to the situation here, and we believe this situation should be met, as our contemporary suggests, by the promulgation of information from architect to client. It is this fear of falling values alone which is rendering the resumption of building activity on a very large scale difficult. We should put the problem in a nutshell by saying if it is immaterial to a man whether he builds now or in six years' time he would be well advised to wait, but not otherwise. And in practically no case is a man in this position. It is usually a case of considering whether he will build now or wait for some months, or possibly for a year, and it seems perfectly clear to us that no material reduction of prices will take place in so short a time. We believe also that it is possible that the cost of building may now be actually lower than it will be in the near future, because comparatively little is now going on compared with the mass of building which is being held in suspense. Contractors have in many cases taken work at cost price to keep their staff employed, a condition which will not obtain in busier times. Wages will drop a little, but it is quite possible that when they do the employers will not benefit by it. At present the craftsmen in the building trade are giving good value for the wages they receive, while it is possible that they may not be so well content after wages have been cut.



This chart is presented monthly with trend lines extended to the most recent date of available information. Its purpose is to show actual changes in the cost of construction and the effect upon new building volume and investment as the *index line of building cost* approaches or recedes from the "curve of stabilisation."

The curve of stabilisation represents the building-cost line at which investors in this field may be expected to build without fear of too great shrinkage in the reproduction value or income value of new buildings. The index line representing actual cost of building entered the zone of stabilisation in the fall of 1921. If this cost line passes *out* of the zone of stabilisation, building volume will decrease materially.

The degree of the curve of stabilisation is based on (*a*) an analysis of time involved in return to normal conditions after the Civil War and that of 1812; (*b*) the effect of economic control exercised by the Federal Reserve Bank in accelerating this return after the recent war; and (*c*) an estimate of the probable normal increase in building cost.

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Illustrations.

THE WORK OF MR. J. HAROLD GIBBONS (see page 481).

Notes and Comments.

Smokeless Fuel.

Professor H E. Armstrong, in an address at Manchester on the subject of Smokeless Fuel, stated that much progress had been made of late in the study of conditions which determined the combustibility of fuels. The South Metropolitan Gas Company had succeeded in producing a smokeless fuel, burning in a by no means unsatisfactory manner, from ordinary hard gas coke by grinding it to a powder, mixing this with an equal weight of fine bituminous coal, and carbonising the mixture at a low temperature. Messrs. E. V. Evans & Co. had shown that if coal were reduced to a fine powder, then compressed under a pressure of ten tons per square inch and carbonised, a coke might be produced of remarkably uniform structure with the combustility of charcoal. It would seem to be possible to produce smokeless fuels of any required degree of combustibility by modifying the conditions of carbonisation so as to leave more or less volatile matter in the residue. The experimental plant at Barnsley had been in regular operation, with such effect that about 4,000 tons had been produced of a "coalite" which had found a ready sale at prices superior to that of coal. From personal experience he could testify to the superior value of that fuel, although that which he had had gave an undue proportion of ashes, owing to the use of an unwashed coal.

We believe that the time is not far distant when it may be possible without inflicting hardship on anyone to prohibit the direct use of soft coal in all domestic and other fires, and when the atmosphere of most of our towns may regain its purity.

Bribery.

We have before us the News Sheet of the Bribery and Secret Commissions Prevention League, an association which we respect without feeling enthusiasm about. It has always seemed to us that attempts to deal with bribery are as futile as attempts to clear slums would be if it were provided that slums of a certain class could not be touched or interfered with. Bribery is an ugly name given to attempts to secure consideration for certain services, but the man who would indignantly refuse to give a sovereign for services rendered will frequently feel no hesitation in giving some less tangible consideration for what he wants, and the cleverer a man is the more unnecessary will he find it to give a consideration which would bring him within the scope of any law. The League is thus in the position of a gardener who can lop off the visible branches of an evil growth but can never deal with its roots. If we take the old-fashioned custom of buying the support of the free and independent burgesses of a constituency, we have prevented the actual payment of coin of the realm, but we cannot touch the wholesale debauchery of the constituencies with promises which do more harm, for the candidate's supply of them is unlimited, whereas his supply of guineas must have a limit. The only remedy is that in the process of time man's moral nature may be so improved that it will be impossible to offer him any inducement which will tempt him from the path of rectitude. But if we were asked to name a probable date at which this happy state might be reached we should suggest the Ides of March, or the millennium, and meanwhile we doubt whether the League will do more than to drive the evil which it combats underground.

Art Galleries.

The Curator of the Manchester City Art Gallery read a very well-composed paper on the Problem of Provincial Galleries and Art Museums, in which he expressed his conviction that while the amount to be expended on purchasing treasures must be settled by a committee, it was a mistake for that committee to have a deciding voice in the expenditure of the sums allotted, as the decision and actual selection of works to be acquired should be vested in expert hands, such as those of a well-trained curator. He also said that the best manner of concentrating attention on what is best in a gallery was to withdraw inferior works, a responsibility which we also think should be that of the curator alone. Power to reject well-meaning bequests of indifferent quality should also be given. In this as in other things the road to efficiency will be found to choose a first-rate man and trust him. As it is, our local museums and art galleries are usually called into being firstly to satisfy some well-known public character by building a museum out of funds given by him to commemorate his munificence, secondly to stock it with a collection of miscellaneous articles of little value or interest to satisfy their donors, and in the third place to give occupation to a well-meaning committee of local nonentities who like to concern themselves in "local affairs."

A Colliery Housing Scheme.

A number of colliery and iron concerns operating in various parts of the country—South Yorkshire, South Wales, Lincolnshire, Derbyshire—have come together in the formation of a company, known as the Industrial Housing Association (Limited), for the purpose of pooling their obligations, and operating on co-operative lines. Collectively, they have put down a million sterling, free of interest, saying to themselves no doubt, "We regard this as a premium (or, if you like, a fine), to get the houses that we want, seeing that this is the only way, and that only so can the remaining share of the requisite capital be found." For it should be explained that the erection of 10,000 houses, which is what the scheme contemplates, presupposes much more than a total expenditure of a million pounds. It may very well be, indeed, that before the programme is completed the total capital required will have run to five millions, the outside contributions being raised as debenture stock at a moderate rate of interest. This will not infringe the basic rules of the Association, since the ordinary capital subscribed by the constituent colliery concerns will not bear interest (and will, therefore, not be profit-earning), neither will the directors appointed receive any fees.

We are glad to record that the colliery proprietors who were a short time ago threatened with nationalisation are banding together in South Yorkshire to perform what it emphemistically entitled the "service of the community," a service which in case the mines had been nationalised would have been pressed on that patient person the taxpayer.

Vanishing Art Treasures.

At the annual meeting of the National Art Collections Fund at Burlington House last week, Sir Robert Witt, chairman of the Executive Committee, who presided, alluded to the export of art treasures from England. "It is my duty to warn the society," he said, "that at the present moment more than one great masterpiece is in imminent danger of leaving this country; more than one masterpiece which no country, however poor, can afford to lose. We are so impressed with the gravity of the position that we are prepared to support the Chancellor of the Exchequer in any method short of confiscation which will keep these masterpieces in the country." There were in the country, he said, quite a limited number of works of art which must on no account be allowed to leave. One method of dealing with the matter was by prohibition of export, and another was by establishing a central fund. In the event of prohibition a central fund would be necessary for paying compensation, and he put forward a suggestion of taxation on the transport of works of art or taxation on auctions, by which a substantial amount could be raised for such a fund.

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London Art Galleries.

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The Collectors' Gallery at 36 Sloane Street have arranged for the month of June a very attractive display of water-colour drawings by members, past and present, of the "Old" Water-Colour Society. The past members here occupy the ground-floor gallery, and offer some very choice work. I noticed specially "On the Rhine," by William Callow; two drawings by Peter De Wint, "Lowther Castle" and "River Scene," with that deep, rich colouring which belongs to this fine painter; among the five Copley Fieldings, "On the Dutch Coast" and "Fishing Boats"; and two entirely delightful little drawings by Samuel Prout. T. M. Richardson is a painter who is sought after now, and his large drawing here of a South Italian subject, the Convent of Santa Trinitá, La Cava, Naples, justifies his reputation; besides this, though less important, may be noted James Holland's "Street Scene, Venice"; and among artists whom I know less are G. F. Robson, in a large drawing of that favourite theme for water colour, Durham Cathedral, and F. O. Finch in "Landscape and Cattle."

We are getting nearer to the moderns in Alfred Parsons' "Daffodils" and Sir E. A. Waterlow's "Footbridge, Haddon Hall"; and we are amongst them entirely in the lower gallery. The selection here is distinctly a good one. Helen Allingham's "Cornfield at Downton" and "Blossom Time," a thatched cottage in the luxuriance of spring, painted with the delicate detail which this artist loves, are very typical; and the same might be said of W. Russell Flint's bathing scene—two girls picnicking by the water with the aid of a thermos flask—though why this should be entitled "Humoresque" escapes me at the moment. Frank Brangwyn ("Water Wheel, Toledo"), John S. Sargent ("Generalife," lent by Mrs. Baird), Albert Goodwin (in nine drawings, of which "The Abbey Garden" and "Interior of Christ Church, Oxford," show admirable drawing), Clara Montalba, Cecil Hunt, Oliver Hall, Charles Sims, and Harry Watson (though this last has done better things than this "Girl Reading" on the rocks) make up a choice and very satisfying display of work in this medium, which is good throughout.

The directors of the Chenil Gallery in Chelsea and the Alpine Club Gallery in Conduit Street, W., have a reputation for introducing original work. Years ago they brought forward—I believe before any other gallery—Mr. Augustus John; and the same would, I also believe, apply to Sir W. Orpen and Ambrose McEvoy; while at this moment they are introducing to the public at the Alpine Club Gallery the paintings and drawing of Mr. Henry Lamb, and at the Chenil Gallery the drawings, paintings, and etchings of Leon Underwood. Mr. Lamb has already come before the public in his war paintings, that of the Palestine area of conflict being at the Tate Gallery, while another, its subject from Macedonia, has been acquired for the Manchester Gallery. Some interesting studies for these paintings are shown here, but what I personally enjoyed most in this artist's work were his small oil landscapes, such as "Near Pytch Hill," "Bare Beeches," and "Enford Withy Bed," as well as the colour and clever drawing in "Roof View, Poole," a work of this year. Mr. Lamb is a good draughtsman, as sincere as he is uncompromising, and we see some good examples of this in his heads of "David John" and "A Cornish Girl." The large portrait of Lytton Strachey gives one the impression of a convalescent, and is singularly unattractive, while the "George Kennedy and Family" almost overwhelm us with their sense of material well-being. At the Brook Street Galleries Mary Stirling has just opened a display of water colours of Portugal, Hampton Court, and Egypt.

S. B.

The fund for the erection of a statue to Joan of Arc in Winchester Cathedral is shortly to be closed. Among the subscriptions have been one from a New York Committee and £140 from Mr. J. Sanford Saltus. The design is by Mr. J. N. Comper.



DUNDEE WAR MEMORIAL COMPETITION. SECOND PREMIUM.
Designed by A. Stanley Furner, A.R.I.B.A., and Hermon Cawthra, R.B.S., A.R.C.A.

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Mantua: Her Story in Art and Architecture.

By Selwyn Brinton, M.A.

III. The Tyranny of the Bonacolsi.

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In the preceding notices we have traced the growth of Mantua in the Middle Ages into an independent and powerful Commune, whose friendship was eagerly coveted by Pope and Emperor and by her sister Republics, and who was strong enough, under the leadership of her heroic citizen Sordello, to defy and defeat the tyrant of North Italy, Eccelino Romano. But the political conditions in Italy at this time were inimical to liberty. About this very time there began to be formed in North Italy, under the House of Della Torre, that powerful State which became, more than a century later, the Duchy of Milan. "The bitter enmity," writes De' Sismondi, "between the two parties of the Guelphs and Ghibellines was fatal to the cause of liberty"; and he adds that "the defeat of Eccelino and the destruction of his family" (who were extirpated by their infuriated victims and enemies) "may be regarded as the last great effort of the Lombards against the establishment of tyranny in their country. About this time the cities began to be accustomed to absolute power in a single person. In each Republic the nobles, always divided by hereditary feuds, regarded it as disgraceful to submit themselves to the laws rather than do themselves justice by force of arms: their quarrels, broils, and brigandage carried troubles and disorders into every street and public place; the merchants were continually on the watch to shut their shops on the first cry of alarm."

At this time was introduced the custom of giving the command of the militia in the towns to the first officer of justice, in order to give him authority to direct the public force against rebels or disturbers of order, or to discipline the soldiery by fear of punishment, such power being generally entrusted to the Podestá, or Captain of the People. Excellent in itself, this power was dangerously open to abuse. This Podestá had under his charge the "Signoria," the Lordship of the City, who possessed the power of life or death in the tribunals; he had also at his command a body of cavalry, maintained at the expense of the Commune; what more easy than to turn the great powers thus entrusted him to preserve public order into the creation of a personal despotism?

We shall now observe these very principles working out to the destruction of Mantuan freedom. "There were," writes her old chronicler, "within the city four families most powerful, and four others which were of scarcely less weight. In the quarter of S. Pietro dwelt the Bonacolsi and the Grossolani; in that of S. Martino the Arlotti and Poltroni; in that of S. Jacopo the Casaloldi and they of Riva; in the larger quarter the Zenacalli and the Gaffari." A plot by the Gaffari to hand over the city to the Lords of Ferrara was discovered, and those of this family who remained were attacked and slain, the rest being banished. A public council was called to discuss the position, and "the Mantuans gave orders that two citizens with full authority should be elected every six months from two quarters of the city, and they gave to these magistrates the name of Captains (Capitani). Two Captains were therefore chosen in Mantua from the nobility, and, as it were, to be the tribunes of the people; these were Pinamonte de' Bonacolsi and Ottonello de' Zenacalli, elected in the year MCCLXXIV." Thus were the first steps to a despotism taken, as usually happens, in the name of public liberty and safety. The lamb, as I have said elsewhere, had now confidingly reposed its head on the wolf's convenient shoulder; and the result was as prompt as it was—to the lamb—disastrous.

Mantua must indeed at this time have been already full of great fortresses with towers, where the nobles kept their retainers and pursued their private wars. The Bonacolsi Palace, with its embattled walls and two great external towers, of which I gave an illustration in the first article of this series, was a typical example of these fortresses, with covered approaches or arcades permitting their friends to rejoin them in the palace itself in case of a sudden attack. And this stern and gloomy fortress-palace was now the scene of a mysterious tragedy. "They," says our chronicler, still speaking of the two newly elected Capitani, "had not been together a month in office when Zenacallo, called at night-time to confer with his colleague as on some matter of importance into Bonacolsi's palace, was suddenly given to instant death." So that Bonacolsi remained alone Capitano; "and the next day called the people to vengeance, seeking to persuade them that his colleague had been attacked and killed by private enemies. This enquiry he kept up so long that no one spoke any more of the dead man . . . wherefore, having given the hint to his followers, Pinamonte was re-elected for another six months. Then, feeling that he had laid secure foundations of power, he sought the title of Captain-General." We know, in fact, from other sources that Bonacolsi, with the people's approval, was elected in 1274 Captain of the People, and in 1276 Captain-General of Mantua.

A plot of the nobles, the Arlotti, Agnelli, Grossolani, and others, to remove this new tyranny, discovered and crushed in time, only served to strengthen it; and when death cut short Pinamonte's schemes of dominion his power passed on to others of his family—to Bardellone, and later to Bottigella Bonacolsi, one of the strongest of his race. He it was, according to Mario Equicola, who "applied his mind to building, and built that Palace of the Piazza where they now sell salt." If the Bonacolsi Palace just mentioned saw the mysterious crime which gave them power, it surely also saw the no less sudden and tragic end of their race, ere it became overshadowed by the vast palatial residence, the Reggia of the Gonzaghi. For Bottigella too had now passed away, and bequeathed his lordship to his brother Passarino, who was one of the great Princes of Italy, and joined with the Visconti of Milan and the Della Scala of Verona against the Pope. By so doing he declared himself openly Ghibelline, and was assailed by Pope John XXII. with abuse and excommunications and promises if he amended.

Now occurred one of those swift and terrible disasters which show on how narrow a foothold the despot of Italy in those days kept himself in place. Gossip said there was a woman and a wronged husband of the Gonzaga house at the bottom of it all, but what actually happened was as follows: There was bad blood then between the Scala of Verona and the Bonacolsi, and Guido Gonzaga was sent privately to Verona to secure support, in which he was successful. Then suddenly, on one day of August, Filippino Gonzaga, the wronged husband, with his father Luigi, came forth armed from their houses, "with much people, calling aloud 'Viva il Popolo.' Hearing the tumult, Passarino springs on his horse and issues forth, thinking with his presence to still it; but when he had come beneath the tower of the Palazzo della Ragione he was struck in the face, and then, mad with rage, was carried by his frantic horse, striking his head against the archway of the great Palace that looks on the Piazza of S. Pietro."

Falling there, he was quickly surrounded by his enemies and slain; his son Francesco was captured and died in the hands of his enemy, Della Mirandola; his followers were imprisoned, and perished. "And so," says the old chronicler Gionta, "after five and fifty years of power the tyranny of the Bonacolsi had its end." It began in a crime or tragedy, and so it ended. The same grim old Palace may have witnessed both: the Gonzaga, of the people's choosing, stepped into the empty seat of power.

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Modern Methods in Building Construction.—XX.*

By Albert Lakeman, M.S.A., M.C.I.

FOUNDATIONS ON SOFT SOILS—(*continued*).

Foundation Piles.—In addition to the Raymond Concrete Piles, Messrs. J. & W. Stewart also execute cast-in-place piles which do not include the provision of a permanent shell for the concrete, and many schemes have been carried out by them on this system. The method consists of driving down a heavy steel tube, generally 16 in. outside diameter, and having a loose cast-iron point, until the required final set is obtained, by means of a heavy drop-hammer operated by a high-speed friction winch. The tube is then filled with concrete to a height of several feet (according to the length of pile) above the level at which it is desired to finish the head of the pile. A powerful pulling tackle is next coupled on and the tube is slowly and steadily drawn out of the ground, leaving the loose cast-iron point at the base of the pile. As the tube is withdrawn, the concrete sinks and expands, filling up tightly the hole so formed. Reinforcement can be placed in the tube before the concrete is poured if a reinforced pile is required. The makers claim that this C.P. (cast-in-place) type has been used for the last fifteen years, and also that the system is probably the most universally and extensively employed method of constructing concrete bearing piles, not only in this country but on the continent of Europe and throughout America. The advantages claimed for the method as compared with pre-

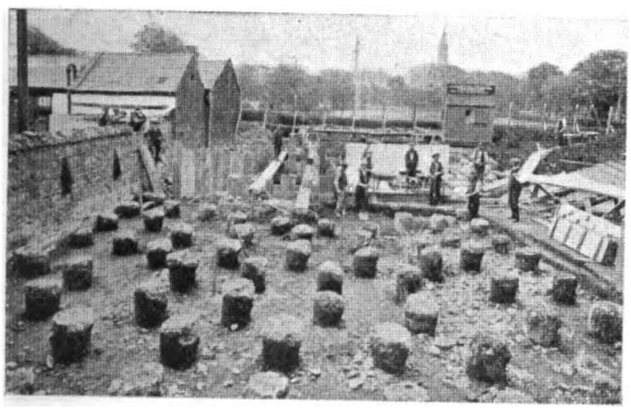


Fig. 116.—J. & W. STEWART'S CAST-IN-PLACE CONCRETE PILES.

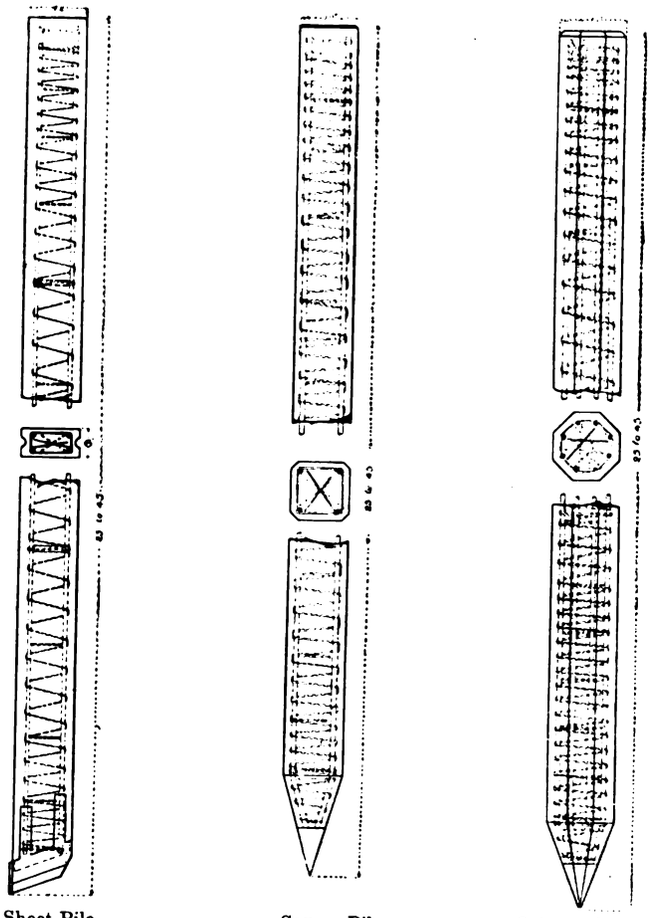
Showing Excavation Prior to Casting Slab on Top.

cast concrete piles include increased safety and speed. The increased safety is due to the fact that the concrete does not receive any blow, thus eliminating the risk of fracture below ground, as the stress of driving comes entirely on the plant and not on the pile. The increased speed is attained by getting the plant into operation anywhere in little more than a week on the actual installation of piles of any length with as many variations as may be needed for the same job, whereas pre-cast piles must have the length predetermined and they must be moulded and seasoned before use.

It is also claimed that these C.P. pile always cost less than pre-cast piles, while they obviously possess all the advantages over timber piles which have been previously mentioned in the general notes. Messrs. J. & W. Stewart also make pre-cast concrete piles for any particular foundation work that may demand special reinforcement, or where they are, for any peculiar reasons, more desirable, and the claims of the C.P. type are put forward because in the generality of cases they are considered to be the best, quickest, and most economical form of piling for foundations, but this firm will install other types where, as stated above, the circumstances show same to be preferable. An example of the cast-in-place concrete piles ready to receive the foundation slab is shown in fig. 116.

Although many advantages are claimed for cast-in-place concrete piles, the use of pre-cast piles has been very extensive, and many firms specialise in these at the present time, with the result that various lengths and

STANDARD B.R.C. PILES



Sheet Pile. Square Pile to take 40 tons. Octagonal Pile to take 60 tons.

Fig. 117.

sizes can be obtained without delay or difficulty, while special lengths and sizes can be had if the work demands it. When standard pre-cast concrete piles can be obtained from stock, the question of delay during the maturing stage mentioned in the comparison with cast-in-place piles will not apply, and as the pre-cast piles will be seasoned when driven, the full load can be applied more quickly after installation than will be the case with the cast-in-place type.

Standard reinforced-concrete piles of the pre-cast type are made by the British Reinforced Concrete Engineering Co., Ltd., of Dickinson Street, Manchester, in two shapes—viz., square and octagonal. This firm also make a standard reinforced-concrete sheet pile. These standard piles are illustrated in fig. 117, and they are formed of rods encircled with B.R.C. sectionised helical wrappings.

*PART I.—I. Introduction, Steam shovels, Jan. 13; II. Steam shovels, Trench diggers, Jan. 20; III. Grab buckets, scrapers, Jan. 27; IV. Drag-line excavators, Feb. 3; V. Derricks and cranes, radial loader, paving-breakers, Feb. 17; VI. Surplus Soil Transport (Hand Labour), Feb. 24; VII. Surplus Soil Transport (Horse-drawn wagons, Steam-driven wagons), Mar. 3; VIII. Surplus Soil Transport (Steam-driven wagons), Mar. 10; IX. Surplus Soil Transport (Steam-driven wagons, Petrol wagons, Narrow-gauge track with wagons), Mar. 17; X. Surplus Soil Transport (Narrow-gauge track with wagons, Trucks on Standard-gauge track, Electrically-driven trucks and vehicles), Mar. 24.

PART II.—XI. Foundation Work (Ordinary soils, Soft soils), April 7; XII. Foundation Work (Soft soils), April 17; XIII. Foundation Work (Soft soils), April 21; XIV. Foundation Work (Soft soils), April 28; XV. Foundation Work (Soft soils), sheet piling, May 5; XVI. Foundation Work (Soft soils), steel-sheet piling, May 12; XVII. Foundation Work (soft soils), steel-sheet piling, pumping, May 19; XVIII. Foundation Work (soft soils), pumping, May 26; XIX. Foundation Work (soft soils), foundation piles, June 2.

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with B.R.C. hoops at the top and at various intervals along the shaft. All the piles are fitted with cast-iron or steel shoes, and they are made from 25 to 45 ft. long. The square pile is 12 in. square, and it is made in five different strengths capable of supporting loads varying from twenty to forty tons in variations of five tons at a time. The octagonal pile is 14 in. across the flats, and this is also made in five different strengths to carry loads of from forty to sixty tons. Corresponding piles 14 in. square are also made. The sheet pile is rectangular, 12 in. by 6 in., with a groove down each side. The groove on a driven pile is cleaned out by a projection on the shoe of the following pile, and is then grouted in to bind the piles together. It is considered that the standard strengths and lengths will provide sufficient variation for all ordinary work, but piles of various lengths and sections can be supplied to suit special requirements when necessary. The piles can be grouped to take nearly all practical cases of loading, and they can be continued above ground to form piers if necessary. When used under walls they are placed at convenient distances apart, and a reinforced-concrete beam or sill is formed on the top to act as a continuous foundation.

The makers recommend a heavy ram with a small fall and the use of a wooden dolly when driving, and they also call attention to the need of exercising some care in the case of long piles to avoid subjecting them to excessive bending stress while handling them during transport or slinging them into position.

Although these standard piles are designed and manufactured to carry a certain specified load, the safe load on any pile will depend on the frictional resistance and the resistance at the point, which in turn will be dependent on the nature of the soil and the amount of driving. The safe load is therefore determined by the amount of penetration obtained during the last few blows, the formula being as follows:

$$SL=\frac{W^2\times h}{d\,(W+P)}\div FS,$$

where SL=safe load in tons, W=weight of hammer or ram in tons, h=height of fall in inches, d=penetration in inches (average of last few blows), P=weight of pile in tons, and FS=factor of safety, which will be decided to suit the circumstances, but can for ordinary building purposes be taken as 5.

A simple example will illustrate the use of this formula and enable the working to be followed. Assume that a pile 25 ft. long and weighing 30 cwt. has been driven with a 3-ton ram or hammer with a drop or stroke of 36 in., and the average penetration during the last few blows has been ¼ in., what will be the safe load in tons with a factor of safety of 5? The formula would then read as follows:

$$SL=\frac{3^2\times 36}{\cdot 25\,(3+1\cdot 5)}\div 5=$$

$$L=\frac{324}{1\cdot 125}\div 5=\ SL=\frac{288}{5}=57\cdot 6\text{ tons.}$$

The maximum load to be placed on the pile must not exceed (*a*) the calculated load for which it was designed, or (*b*) the safe load as determined by the above formula after driving, whichever is the least. It will be obvious that the penetration value must be considered, because the power of the pile to support a load will be dependent on its power to resist penetration under the weight of the load, and an excessive load will cause the pile to sink and settlement will result.

In addition to the manufacturers of pre-cast piles, there are several firms who supply the reinforcement for piles made up into the required form. Messrs. Brown & Tawse, Ltd., of London Wall Buildings, London, undertake the manufacture of pile frames, complete with shoe, ready for concreting. The frames can be made up at their works and delivered to the site of operations, or, if in sufficient quantities, the bars and links are sent to the site and skilled men are provided by the firm to make up the frames there ready for the concretor. The latter method will be found more economical and efficient than employing unskilled men to make up what is really a specialised article, and Messrs. Brown & Tawse claim that the "B. & T." method ensures correct placing of the links without the use of keys or wedges between the pile-bar and the loop of the link. Some pile frames made up ready for concreting on the system are shown in fig. 118.

The advantage of obtaining the pile-frames only is that the transport of heavy members to the site is avoided

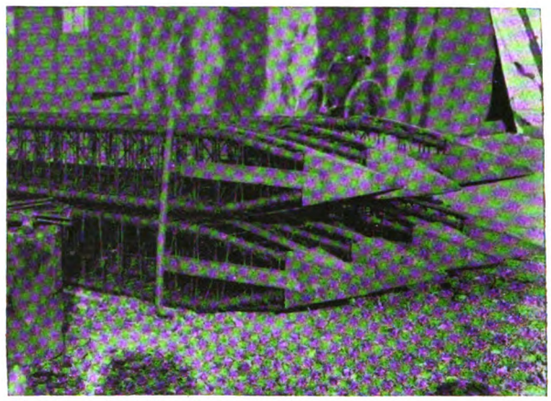
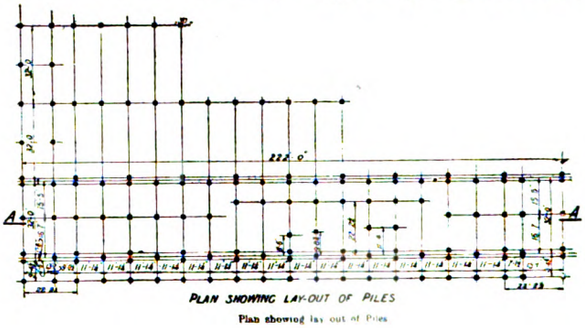


Fig. 118.—A FEW "B & T" PILE FRAMES READY FOR CONCRETING AT SOUTHAMPTON.

and the risk of damage minimised, while full advantage can be taken of any local supply of aggregate on the site or close to the scene of operations, which will mean, possibly, a reduction in the cost of the completed piles.

Another type of reinforcement used for pre-cast concrete piles is the "Keedon," supplied by The Johnson's



Plan showing lay out of Piles

Fig. 119.

Reinforced Concrete Engineering Company, Ltd., of Manchester. Round steel bars are used, these being hooped together with Keedon hoops or spirals, and the steel is sent to the site in the lengths required to suit each particular member, with all fitments made and classified ready for fixing. The piles are made and matured

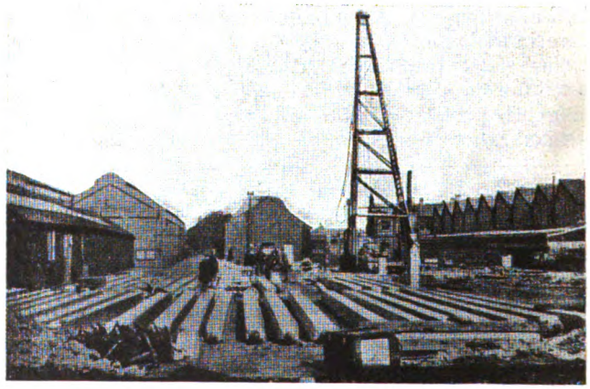


Fig. 120.—"KEEDON" PILES MATURING.

on the site, to avoid heavy transport costs and risk of damage as previously mentioned. An example of the application of these piles is shown in figs. 119 and 120, where fig. 119 illustrates the lay-out of the piled foundation and fig. 120 shows the pile driver and a number of pre-cast piles maturing. This work was executed to

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provide a suitable foundation for some sheds for Messrs. Callender's Cable and Construction Company at their works at Belvedere, Kent, where a portion of the site was that of an old course of the Thames. A detail of the pile used is given in fig. 121, and it will be seen that it was of the square type, 14 in. on face, and 40 ft. 9 in. long overall. The piles were driven with a "Whitaker Pile Driver," the weight of the monkey being two tons and the drop 2 ft. 6 in. It is interesting to note, in connection with the driving, that after passing through a top crust from 5 to 7 ft. deep the ground offered no resistance. The piles simply left the monkey and slid away for an average distance of 16 ft. through Thames mud. In one instance a submergence of 24 ft. was recorded for a single blow. A bottom was found at 30 ft., and a set in ballast of ½ in. for ten blows was obtained at 32 ft.

The Mouchel-Hennebique system of ferro-concrete construction is well known, and Messrs. L. G. Mouchel & Partners, Ltd., of Victoria Street, Westminster, the engineers and designers of this system, claim that Hennebique ferro-concrete piles were the first reinforced-concrete piles to be successfully driven. They state that the essentials of a ferro-concrete pile are that it shall possess rigidity and elastic strength sufficient to permit the pile to be transported, slung, and pitched ready for driving without the slightest risk of damage, and it is claimed that these essentials are embodied in the Mouchel-Hennebique piles, which can be circular, octagonal, square, or other cross-section as desired. The usual form for foundation piles is that of a square with chamfered corners, and in the typical Mouchel-Hennebique type the reinforcement consists of longitudinal rods and transverse links, where the rods are bent inwards at the toe of the steel shoe and the latter is anchored into the concrete by four straps, which are turned inwards at the upper end, as illustrated in fig. 122. The transverse links around the longitudinal bars are arranged in sets of four, spaced more closely near the top and bottom of the pile than in the middle. In this way the concrete is effectively reinforced against the effects of impact at the head, and against the stresses established near the toe when the driving causes the pile to come into contact with stones and other hard materials. A metal helmet is usually employed to distribute the force of the blows uniformly over the head of the pile, and it is claimed that when this method is followed the piles can be driven with ease through hard strata that would shatter timber piles. The method of making ferro-concrete sheet piles is illustrated in fig. 123, where the elevation and horizontal section are shown. The reduced section at the head is arranged to give clearance for the helmet during driving, and the groove on each side enables the piles to be grouted together when watertight sheeting is required. What has been claimed as a great improvement in pile construction is represented by the patent hollow-diaphragm pile invented by the late Mr. L. G. Mouchel and illustrated in fig. 124. The principle governing the design of this type of pile is that the bearing power of any pile is largely if not entirely due to the friction between the faces of the pile and the earth in which it is driven, and consequently any increase in the exterior surface of the pile without an equivalent increase in the volume of material used must result in a more effective type. The increase in surface area by the use of the hollow type is about thirty per cent., and the material is also more effectively placed than in the case of solid piles, so far as resistance to the non-axial loads and transverse stress is concerned where the piles are left projecting above the ground to act as columns. The method of reinforcement is practically the same as that for a solid pile, but, in addition to longitudinal rods and transverse links, the main bars are further connected by diaphragms, which hold in place a consecutive series of tubes each about 4 ft. long, the object of these tubes

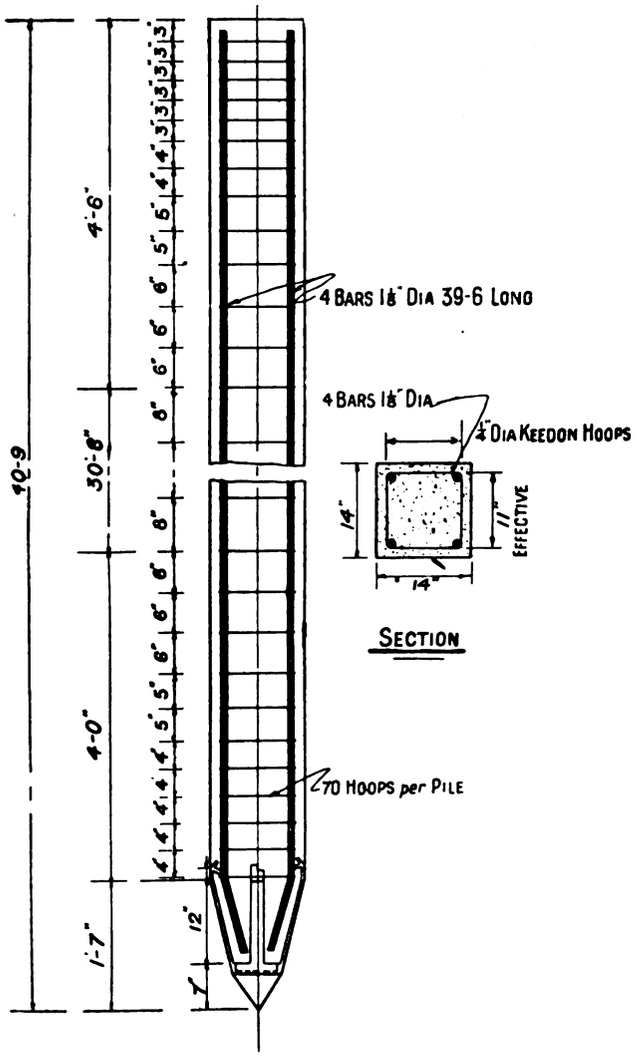


Fig. 121.—DETAIL OF "KEEDON" PILE.

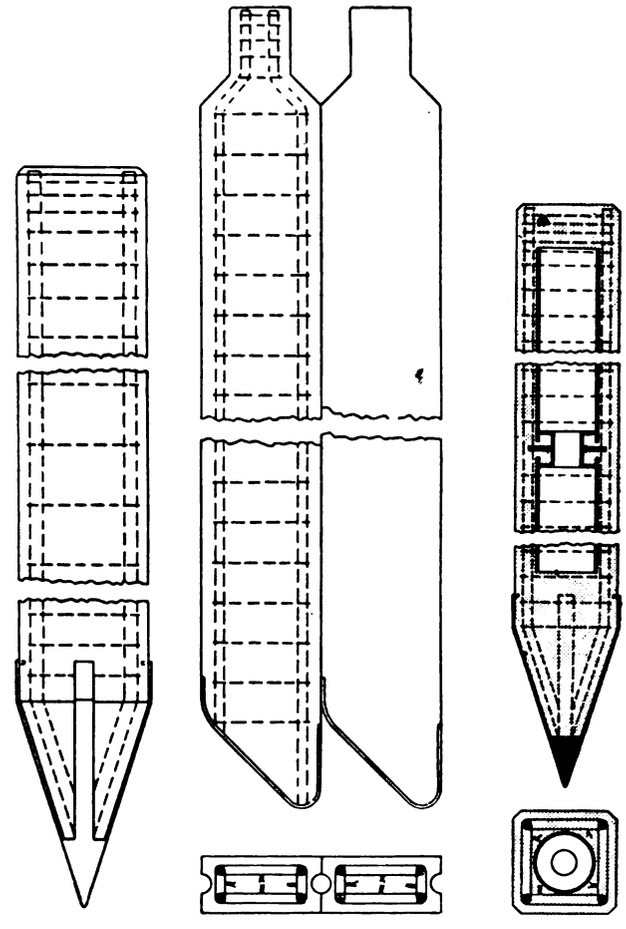


Fig. 122. Foundation Pile.

Fig. 123. Sheet Piles.

Fig. 124. Hollow-Diaphragm Piles.

MOUCHEL-HENNEBIQUE PILES.

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being to form the hollow core of the finished pile. It is claimed that these hollow piles can readily be constructed in very large sections and of great length without exceeding practicable weights For example, in the construction of a jetty at Lorenzo Marques, hollow piles 70 ft. in length were slung and driven with perfect success. Numerous schemes have been executed on the Monchel-Hennebique system of reinforced-concrete piling, but sufficient notes have been given in connection with this type to indicate its importance in modern methods of construction.

There are many specialist firms who design foundation piles, and supply special forms of reinforcement, but it is not necessary to deal with them all in these notes, more especially as the principles of design can be indicated more fully when dealing with the methods of designing and executing reinforced-concrete structures generally, and considerable repetition would be necessary to describe all the different types available for general building work. The engineer or contractor will need to determine whether the cast-in-place or pre-cast concrete piles are the more suitable for the scheme under consideration, and when this point is settled he will be able to deal with the comparative merits of the various forms in each type which can be obtained.

(To be continued.)

Forthcoming Events.

Friday, June 9.—Royal Institute of British Architects. Conference at Cardiff. Paper by Major Harry Barnes, M.P., F.R.I.B.A., on "Unification and Registration." 10.30 to 11.30 a.m. Visit to City Hall and Law Courts, Cathays Park. 11.45 a.m. to 1 p.m. Visits to Welsh National Museum and Glamorgan County Hall. Tea in the Museum. 2.30 to 5 p.m. Banquet at the Park Hotel. 7 for 7.30 p.m.

Saturday, June 10.—Royal Institute of British Architects. Conference at Cardiff. Paper by Mr. Herbert T. Buckland, F.R.I.B.A., on "Civic Architecture and Advisory Art Committees." 10 to 11.15 a.m. Paper by Mr. Percy Thomas, O.B.E., F.R.I.B.A., President of the South Wales Institute of Architects, on "Problems of Practice." 11.15 a.m. to 1.30 p.m. Visit to Cardiff Castle and Grounds. 2 to 6 p.m. Tea in the Banqueting Hall. 4 p.m. Smoking Concert, by the invitation of the South Wales Institute of Architects 8 p.m.

Sunday, June 11.—Royal Institute of British Architects. Char-à-banc tour to Tintern Abbey and the Wye Valley. 10.15 a.m. to 7.15 p.m.

Monday, June 12.—Royal Institute of British Architects. Meeting at 9 Conduit Street, W. Election of Council and Standing Committees for Session 1922-23, and election of candidates for Membership. 8 p.m.

Thursday, June 15.—Royal Institute of British Architects. Public Lecture at 9 Conduit Street, W., by Professor C. H. Reilly, M.A. (Roscoe Professor of Architecture, Liverpool), entitled "Some London Streets and their Recent Buildings." 5 p.m.

Friday, June 16.- Town Planning Institute. Annual General Meeting at the Institution of Mechanical Engineers, Storey's Gate, S.W. Paper by Mr. J. J. C. Bradfield, M.E., M.Inst.C.E., entitled "Sydney—Past, Present, and Future." 5.30 p.m.

— Institution of Sanitary Engineers. General Meeting at the Holborn Restaurant, Kingsway, W.C. 11.30 a.m.

The Liverpool Corporation's scheme for 2,000 houses at Garston is to be completed, and work will be found for 1,500 men. The Housing Committee last week decided to recommend the City Council to enter into a contract for the completion of the 2,000 houses at Garston or on some convenient site, the work to be carried out by the Unit Construction Co., guaranteed by Messrs. Alfred Booth, Ltd. It is understood that the cost of the work will be £678,000, with the benefit to the Corporation of any fall in wages that might take place, including the benefit of the recent fall, which is equal to a saving of £23,000. Of the 2,000 originally intended on the Garston site, 289 are now erected and tenanted, 697 are in course of construction, and 1,014 have not been started. The contract is for the houses to be erected at the rate of 250 every three months.

Correspondence.

Ad Quadratum.

To the Editor of THE ARCHITECT.

SIR,—Permit me to make some observations occasioned by the critique of the Norwegian architectonical work "Ad Quadratum" in THE ARCHITECT for November 18, 1921, and February 12, 1922.

The costs of compiling and publication of "Ad Quadratum" have been defrayed by the Norwegian State, not from any idealistic interest in the theory of architecture, but as an important step towards finishing the Trondhjem Cathedral restoration work, which has been in progress for more than fifty years. This work has rested these last years owing to the absence of archæological criteria for the restoration of the great screen front, which in the main has disappeared. The question is whether it is possible along the lines shown in "Ad Quadratum," by the aid of the system, to find the missing thread for the solution.

The matter is thus of immediate importance for Norway. It will also if (or in my opinion when) it leads to success be of general interest by giving a new estimation and allowing a new treatment of ecclesiastical monuments, as it will on the whole be of importance for architecture generally. There is thus every reason to give the matter the utmost attention. Your first highly appreciative article was hailed as a gratifying sign that the importance of the question is fully understood in England. It therefore appeared remarkable that you then found it opportune to give room to the second article, with its deriding and insulting rejection of the work as also of the author, an insult which culminated in the assertion that the author has *wished* to muddle the question which he is treating.

This discrepancy between the two critiques will, no doubt, have astonished your English readers. It has not been quite so surprising for us Norwegian architects, as we have long ago seen exactly the same arguments as in the second critique put forward in the controversy in a certain part of the Norwegian press. We understand it all the better, as it is a fact that one of the most assiduous opponents here of "Ad Quadratum," Mr. Harald Aars, architect, has latterly transferred his agitation also to the English Press, and has also communicated with your paper in the interval between the two critiques.

I will not, however, enlarge on Mr. Aars's activity in the Norwegian and English Press, but, based on my intimate knowledge of the matter (you will find my name mentioned in the introduction of the work) I will explain the *professional* sides of the question concerning which there is a difference of opinion.

One question is always recurring, viz., the question whether the system-idea holds any reality as a foundation for architectural conception or if it is only a question of insipid speculations by artistic barren brains.

This is indeed at present a favourite assertion within certain circles both in Norway and England (f.inst. Mr. Carøe, architect).

The world's grandest constructive and artistic work, however, the large pyramid in Egypt, unveils itself more and more as the result of a fundamental system-idea, and it may also probably be generally acknowledged that the antique art of temple building also is a result of an established geometrical principle in the planning. It would be reasonable from this fact alone to presume that also the art of temple building of the next great epoch, the mediæval church building, was based on like methods, this the more as contemporary evidence decidedly points that way. "Ad Quadratum's" extremely comprehensive documentary evidence with analyses of a couple of hundred churches, from the large cathedrals to the smallest stavekirks, forms in my opinion conclusive evidence of the correctness thereof, and this conviction has not been shaken by the objections raised against the theory.

As to that the opponents of the system have referred to some divergencies in the geometrical figures and system-lines which the author has drawn in his analyses. The critics have acknowledged that the divergencies are small, but nevertheless they are characterised as fundamental and condemnatory for the whole theory, as it in this case is a question of "mathematical" values. Architecture is, however, not mathematics, but works of man, and as such encumbered with human weaknesses. Every architect therefore knows that there *can* be no question of "mathematical" exactitude in architecture. Already, when designing and

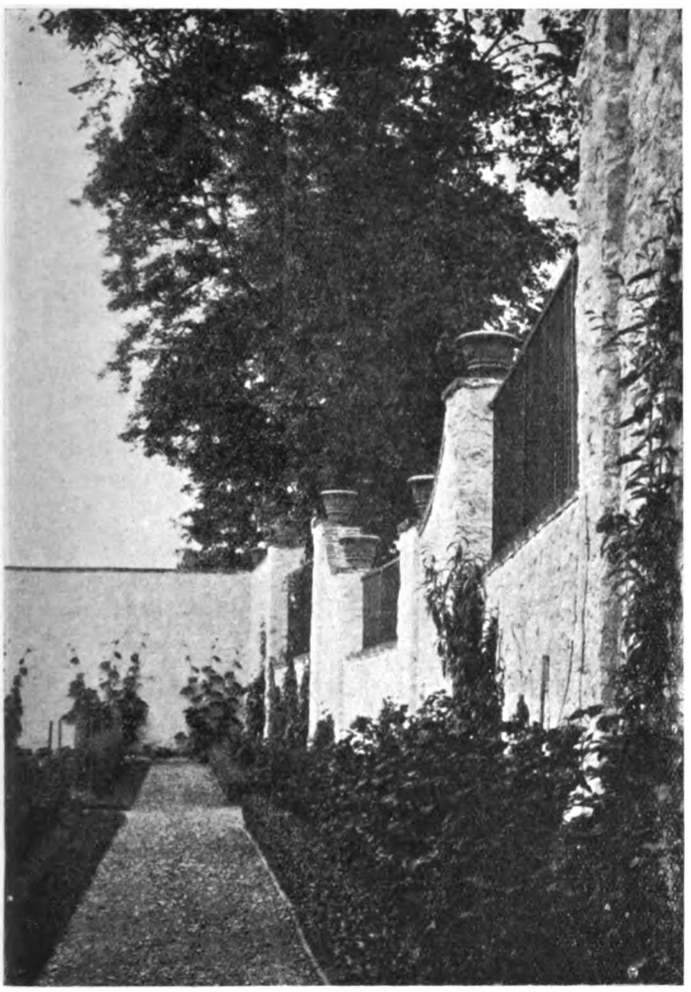
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later during the alignment in the field, the erection, the measuring, &c., many chances for faults arise relative to the original conception, but the fundamental idea, the system, need not therefore disappear.

The task of the author of "Ad Quadratum" has therefore been to trace and to realise this idea in spite of these inaccuracies and without letting himself be deceived by the minor variations in the application of the system which the different buildings may exhibit.

The plans of the cathedral at Spier and of St. Godehard at Hildesheim, which you also have reproduced with the drawn geometrical control lines of the author's analyses, are no proofs against the system. On the contrary, it may rightly be said, I believe, that a mediæval building could hardly have been built with *less* deviation from the idea than the control lines show.

When there is a question of tracing an idea by means of analysis and of establishing the evidence in spite of the faults and defects of the building or the drawings, it is clear that the analysis must *follow* these faults, even although it be done at the expense of the mathematical accuracy of the geometrical figures. And where the inaccuracies are so small as the control proves them to be, there is confirmation of, rather than proof against, the rule.



GARDEN WALL: HOUSE AT RIVERSIDE, CONNECTICUT.

Messrs. Wilson Eyre and McIlvaine, Architects, Philadelphia.

Nor does it do in a work with hundreds of illustrations to pick out some few "faults" of this kind in the outline drawings of the general part of the work and on the basis thereof to condemn the work, at the same time overlooking or neglecting to mention the detailed analyses made out on the basis of authentic designs of the same buildings where the theory is corroborated—for instance, Notre Dame, and many others.

Another argument which is often put forward against the system seems at first sight plausible, but disappears on closer inspection. This refers to the assertion that the system cannot after all be a reality, as no builder could make use of a contrivance so complicated and impracticable as shown in the overwhelming network of geometrical figures and system lines of the analysis drawings.

On closer inspection it will soon be found, however, that the system in its great simplicity does not *require* all these lines.

The reason that they are found in the illustrations is owing to the fact (which the author points out in his introduction) that the whole work, against his wish, was forced forward within a minimum of time (1½ years), and with such limited subsidies that he was forced to a great extent to use his original research sketches as illustrations without any re-drawing.

Even although these sketches are so indistinct, they contain, however, the truth which the author, by their aid, has found. Besides this, they show how a man of science, working along novel lines has solved the riddle which the greatest minds in the world of art and science for centuries have tried in vain to solve.

As the chief argument against the system, it has been urged that if every cathedral in Europe were designed on the "Ad Quadratum" basis *they would every one of them have to be alike*, which, however, they are not.

If this were a sound argument we might with the same right transfer it to the daughter art of architecture, *music*, and say: As the compositions of *Palestrina*, *Bach*, *Handel*, &c., are all different they cannot have proceeded from a common system. We know, however, that all music, in spite of its heterogeneity, is built over and by the aid of the common system formed by the artists and men of science of music which forms the indispensably necessary foundation of all music. Without any system music would sink to cacophony.

The difference between music and architecture is, therefore, that, while the system-foundation of music is known and recognised throughout all times by all musicians as the indispensable basis for all music, the building rules from the grand epochs of architecture were lost with the Middle Ages. In spite of fine details and grand phrases, the architect lives, therefore, at present the life of a beggar borrowing from the outer form of former periods, but without any knowledge of the system, the skeleton over which it is built, consequently without any sure comprehension or any thought of its inner meaning.

We therefore meet with the absurdity that the architects, in their ignorance, uncritically transfer from the art of painting the conception "free art," and deny in architecture the existence and the necessity of a fundamental idea such as exists in music.

There exists no "free" architecture, any more than any "free" music, in the sense that the artist can disregard or dispense with the laws of the branch of art in question.

We all acknowledge the value of the buildings of the antique and mediæval times, we are all of us impressed by the marvellous harmony that meets one in them.

Will these buildings become less valuable if it be proved that they proceed from a distinct and regulating idea bound by imperishable laws of harmony, and not from the nowadays so highly praised "feeling," "sentiment," and "freedom"?

Will not architecture, on the contrary, thereby be elevated into a higher plane, with a freer outlook and greater means at its disposal? It seems to me that we architects have every reason to greet every earnest effort to solve these questions with unprejudiced interest.

The opinion of the international judging committee as to whether the author of "Ad Quadratum" has succeeded in demonstrating the way to solve the riddle will be awaited with suspense in Norway, and probably also in England.—Yours, &c.,

H. Sinding Larsen,
Kristiania. Architect and University Surveyor.

A tour of Italian towns of town-planning interest has been arranged for September of this year in connection with the conferences of the International Garden Cities and Town Planning Association and the Congrès International de l'Habitation at Rome. The party will leave London on September 14 and arrive back on October 1. Milan, Bologna, Florence, Rome, Pisa, Genoa, and Turin will be visited in the order named. Six days will be spent at Rome. In each of the towns the party will be met and conducted, and everything will be done to make the tour interesting and enjoyable. Special visits during the stay in Rome will be arranged. Further particulars will be supplied to possible participants on application to the Secretary at 3 Gray's Inn Place, W.C. 1.

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Smokeless Fuel.

A Benefit to Architecture.

By T. Sumner Smith, M.Q.S.A., F.I.Ar.

The revolutionary invention of smokeless fuel—"coalite"—opens up a bright vista for architecture. The problem of the abolition of black smoke and the consequent destruction of property resulting therefrom has, in my opinion, been solved. It may be only a matter of time, and probably sooner than most may realise, when our smoky and soot-laden atmosphere in our towns and cities, as we know and experience to-day, may be a thing of the past.

The manufacture of smokeless fuel—"coalite"—is the culmination of twenty-one years' continuous work in the face of almost incredible difficulties—mechanical and chemical,—which has involved the erection of over forty different types of retorts and the experimental carbonisation of over 200,000 tons of coal at a cost of £1,000,000. In brief, that is the story and romance of one of the world's greatest discoveries and achievements, and, incidentally, a triumph for British Engineering.

The writer had the pleasure, at the invitation of the Low-Temperature Carbonisation Co., Ltd., of inspecting the company's works at Barugh, near Barnsley, the other day, and it will be not without interest to try and give in this article the essential facts relating to the manufacture of "coalite."

"Coalite" is a bright, crisp, clean, porous solid, which burns with a cheerful fire, almost without flame and entirely free from smell. It also retains its shape as it burns and exposes a large combustible area to the air.

It is manufactured from a mixture of 70 per cent. of non-coking slack and 30 per cent. of coking slack. Non-coking slack is practically a waste product, often left in the mines as not worth bringing to the surface.

Coalite is the residue derived from the low-temperature carbonisation of coal as above, after having first been subject to a process of washing and screening by which means nearly the whole of the ash is removed. The low-temperature carbonisation of coal consists of heating coal in closed retorts, the temperature employed being about 1,000 deg. F. inside the retort, corresponding to about 1,200 deg. F. outside, *i.e.*, heating chamber. The consequence of this is to alter the chemical reactions involved in the decomposition of the volatile matter of the coal. The retorts at the works at Barnsley are of the vertical type, and consist of firebrick built in fireclay in one standard unit of twenty retorts. Inside the retorts (which are about 11 in. wide) are placed two perforated iron plates, 5 in. apart, in the centre, thus forming three compartments. Into the two outer compartments is tipped from hoppers at the top the prepared washed slack, thus forming two vertical columns or slabs of fine coal, about 7 ft. 6 in. square and 3 in. thick, separated by the iron plates. The carbonisation is carried out for about eight hours. The outside of the retorts—heating chambers—about 6 in. wide, are heated by producer-gas, or by a mixture of producer gas and the rich gas from the process.

When the carbonisation is completed a handle is turned at the top of the retorts and the two plates are brought together by a slight shearing action. This leaves a vacant space down one side of each of the two compartments containing the slabs of "coalite," and when the bottom of the retort is opened by turning another handle the two slabs drop into receptacles below.

These receptacles beneath the retorts are water-jacketed, air sealed compartments made of steel, and in which the slabs of hot "coalite" lie for several hours while they cool. The coolers are opened at the sides, and the "coalite" is easily extracted by handrakes as a hard porous solid, only warm to the touch.

The residue from the high-temperature carbonisation of coal in the manufacture of towns' gas is a soft coke—that is, coal containing no volatile matter at all, and coke ovens give us a very hard metallurgical coke. Coalite contains from 9 per cent. to 10 per cent. volatile matter, and ignites almost as quickly as that of best household coal. Soft coke gives off a very disagreeable smell, and for that reason alone is unsuitable as a household fuel; hard coke is manufactured for a special use—blast-furnaces.

Coke and coalite contain practically the same B.Th. units of heat as the coal from which they are the residue after carbonisation, yet coalite gives off a greater amount of radiant heat than coal. From the point of view of household fuel the total radiant efficiency of the ordinary average coal fire is about 30 per cent. The total radiant efficiency of a coalite fire is about 45 per cent. to 47½ per cent.

Since household grates heat chiefly by radiant heat, coalite is a fuel of greatest value. Why coalite should give out so much more radiant heat than coal is not clear, but it seems to be due to its peculiar porous mechanical condition.

It is agreed by almost all engineers that the burning of raw coal is a wasteful process, involving the destruction as a mere fuel of valuable products.

We raise annually about 250,000,000 tons of coal, and of this 190,000,000 is consumed at home. About 18,000,000 tons is used for the towns' gas, and about 20,000,000 tons in coke ovens, the remaining 152,000,000 tons are practically all utilised as raw coal, including 35,000,000 tons for household fires.

If we subjected, say, 150,000,000 tons to low-temperature carbonisation we should produce per annum, say, 100,000,000 tons of coalite (one ton of coalite is equal in radiant heat to about one and three-quarter tons of coal); 450,000,000 gallons of motor spirit (our total present consumption being 250,000,000 gallons per annum); 1,000,000 cubic feet of gas, most of which could be used in gas-engines for electricity generation; 1,350,000 tons of sulphate of ammonia (sufficient for all agricultural purposes); and 2,400,000,000 gallons of oil (some could be used as a wood preservative).

One hesitates to state the importance of coalite for fear of being accused of exaggeration, but no objection can be taken to the fact that raw coal is not even an efficient fuel, and one serious trouble attached to its use is that of black smoke, which is alone costing Great Britain £40,000,000 per annum in damage to health and property.

Besides the decay of stone and brick in buildings, all colour and play of light and shade disappear. New buildings soon share this fate, and become a black, unlovely mass. Not only in external appearance do buildings suffer, but internal decorations are likewise affected.

With a smokeless fuel we should still have the physical satisfaction of an open hearth and a chimney which need never to be swept.

The Executives of the Amalgamated Union of Building Trade Workers and the Building and Monumental Workers' Association of Scotland have prepared an amalgamation scheme, involving the absorption of the latter union. An important feature is the provision recommended to permit craft representation on the Executive Council in the proportion of eight bricklayers to three masons and one quarryman.

Mr. H. Cyril Chatfield Clarke, son of the late Howard Chatfield Clarke, PP.S.I., F.R.I.B.A., of 102 Bishopsgate, E.C., has entered into partnership with Mr. Charles H. Gregory, P.A.S.I., of Gwydir Chambers, 104 High Holborn, W.C. The new firm will practise as architects and surveyors, under the style of Messrs. Gregory & Chatfield Clarke, at the above address. The telephone number is Chancery 8410.

The West Sussex County Council have accepted, subject to certain conditions, the tender of the Unit Construction Co., Ulster Chambers, 168 Regent Street, London, to reconstruct the Norfolk Bridge, Shoreham, for £32,482. This amount will probably be increased by £3,000 to meet the latest requirements of the Ministry of Transport. The original suspension bridge over the River Adur was built in 1832 by the Duke of Norfolk, and was bought by the County Council in 1903 for £8,000.

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Some Work by J. Harold Gibbons.

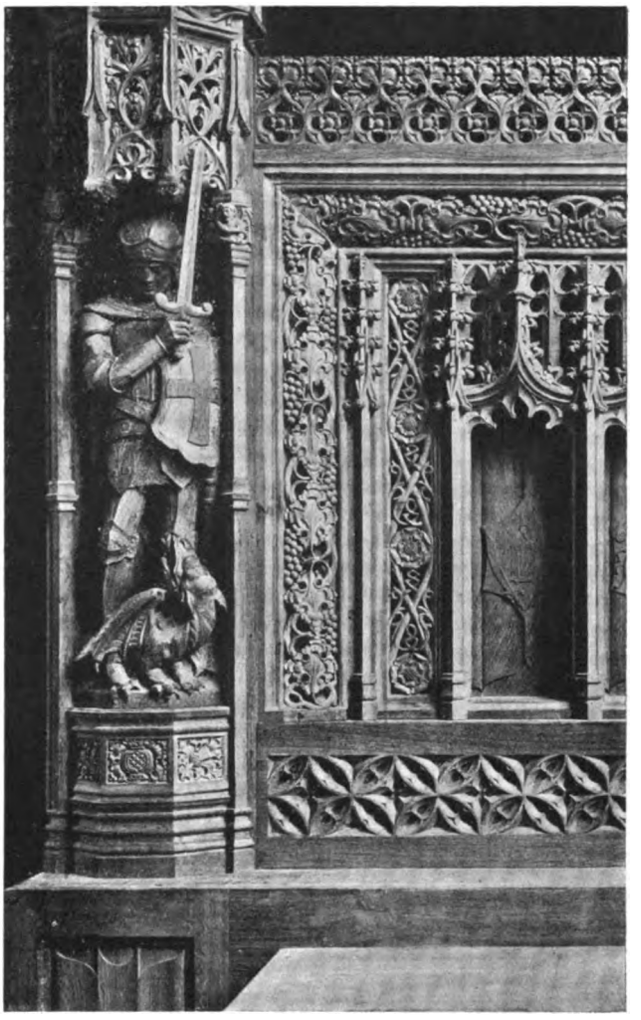
Royton Parish Church has been remodelled as shown on the two key plans, including an oak chancel-screen and panelling at the west end. Behind the font are fixed three reliefs depicting Christ blessing little children in the centre and singing angels at the sides. These have been modelled and coloured by Miss M. E. Rope. The joinery was executed by Messrs. Tinker & Young, of Manchester, and the carving by Mr. H. Sheperdson, of Stockport.

The screen behind the high altar is the gift of Mr. J. Holden Wild, in memory of his father, mother, and wife, and has doors connecting with the new sacristy. The centre portion forms the reredos, with five sculptured panels representing the Nativity. The altar shown will be of oak, carved and gilded. The Lady Chapel, also illustrated, has been delayed owing to the necessity of building the new choir vestry before the old vestry can be converted.

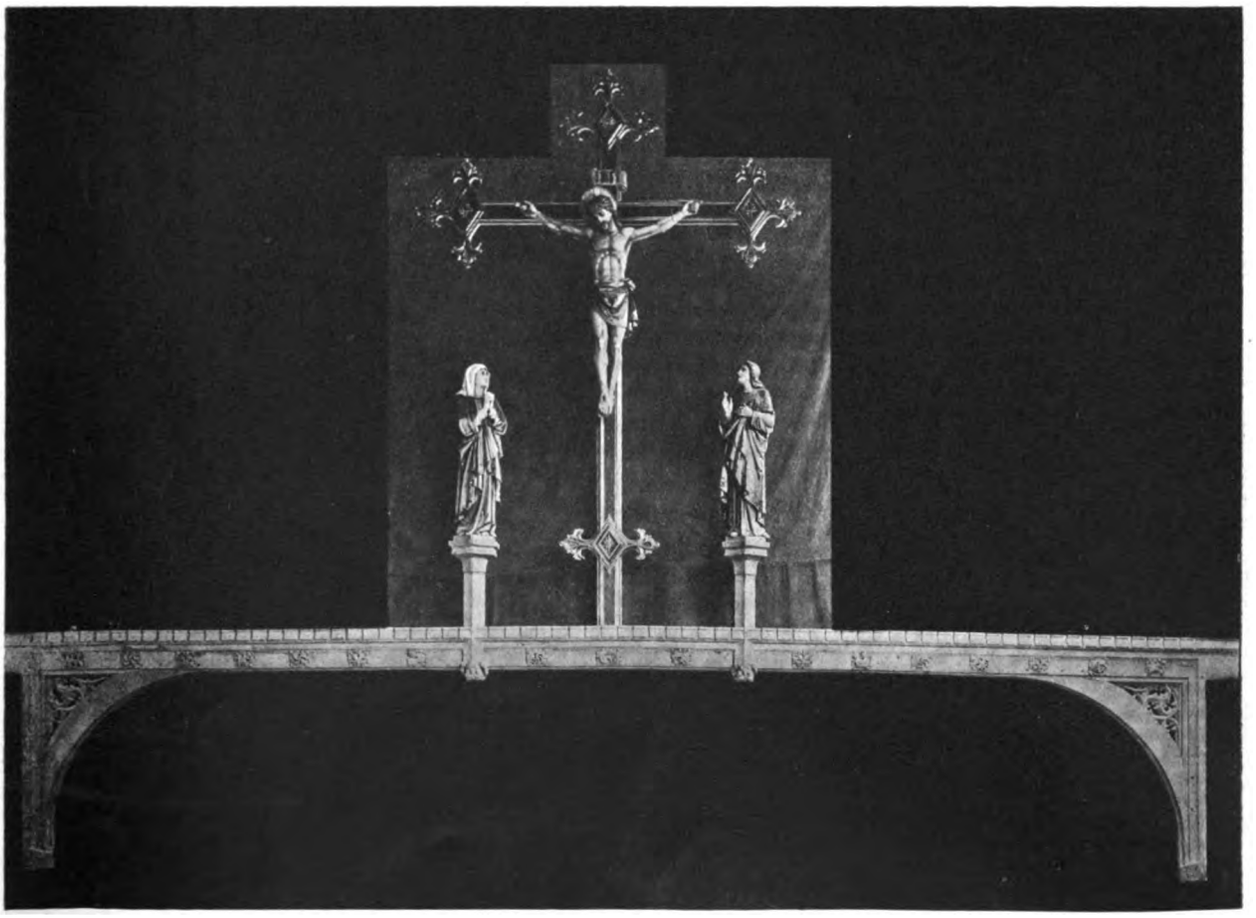
The choir stalls, which are illustrated by photographs on another plate, are of simple character, the ends being carved in low relief with vine, oak, and rose.

St. James's Church, Oldham.—A chancel screen was erected in this church in memory of those who fell in the war. The screen is light and open, with a carved cornice. At the north and south ends (in front of the main piers) are solid panels, that on the north bearing the general inscription and figure of St. George, and that on the south having the names of the men commemorated, with the figure of St. Michael above. This screen is interesting, as it is believed to be the first rood erected in the Manchester diocese since the Reformation.

St. Michael's Church, Bramhall, Cheshire.—This church was designed by Messrs. John Gibbons & Son. The reredos illustrated forms the war memorial, and was originally intended to have a sculptured group in the centre, with angels holding the shields in the side niches. The figures are not yet carried out.

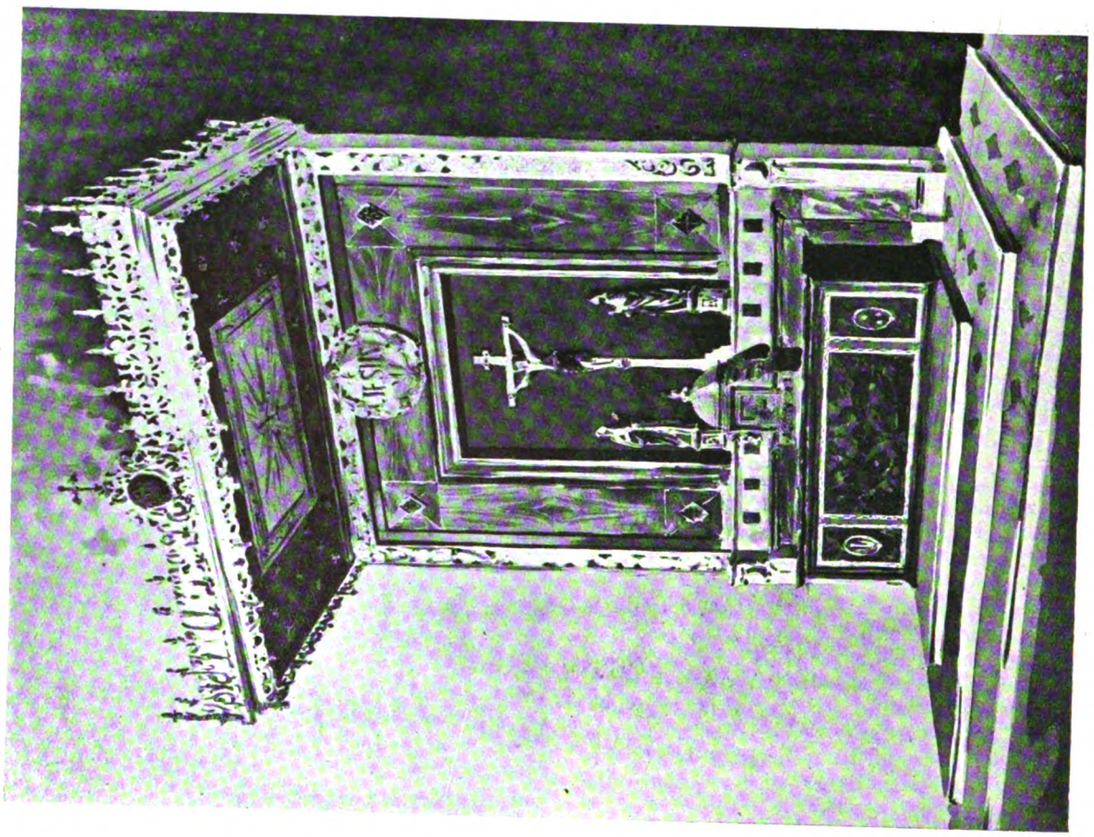


DETAIL OF REREDOS, ST. MICHAEL'S CHURCH, BRAMHALL, CHESHIRE. J. HAROLD GIBBONS, Architect.



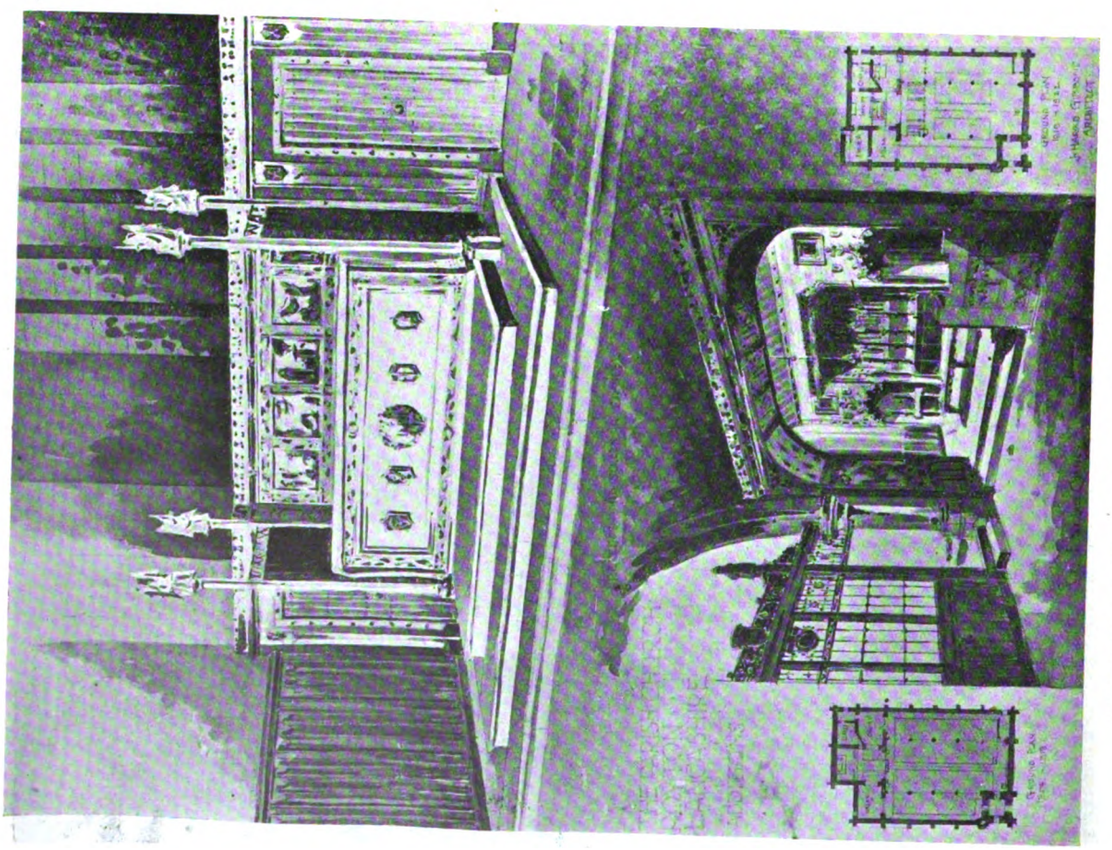
ROOD BEAM, ST. STEPHEN'S CHURCH, GUERNSEY. J. HARROLD GIBBONS, Architect

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THE HIGH ALTAR AND REREDOS, ST. MICHAEL'S, SHOREDITCH.

J. HAROLD GIBBONS, Architect.

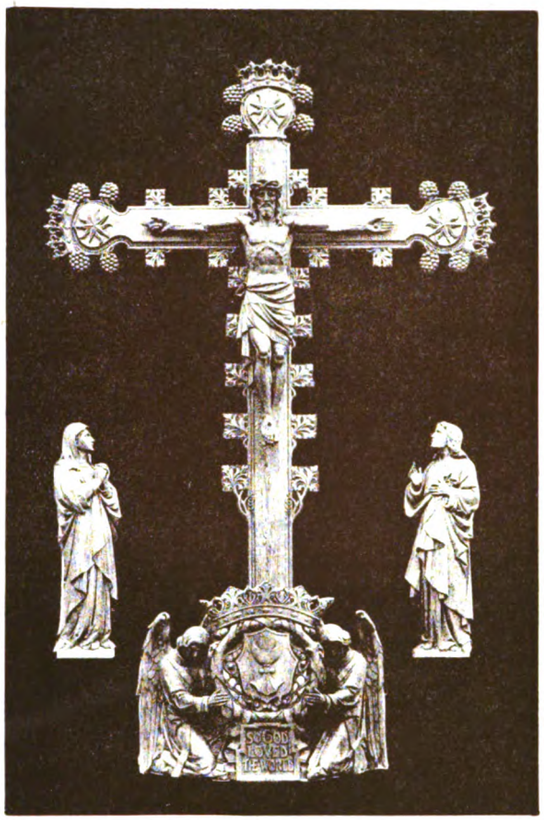


ADDITIONS TO THE PARISH CHURCH, ROYTON, LANCS.

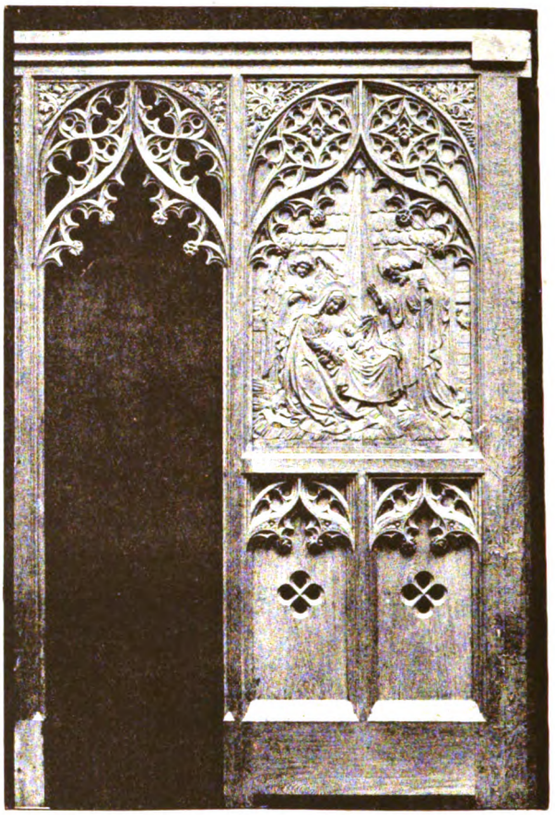
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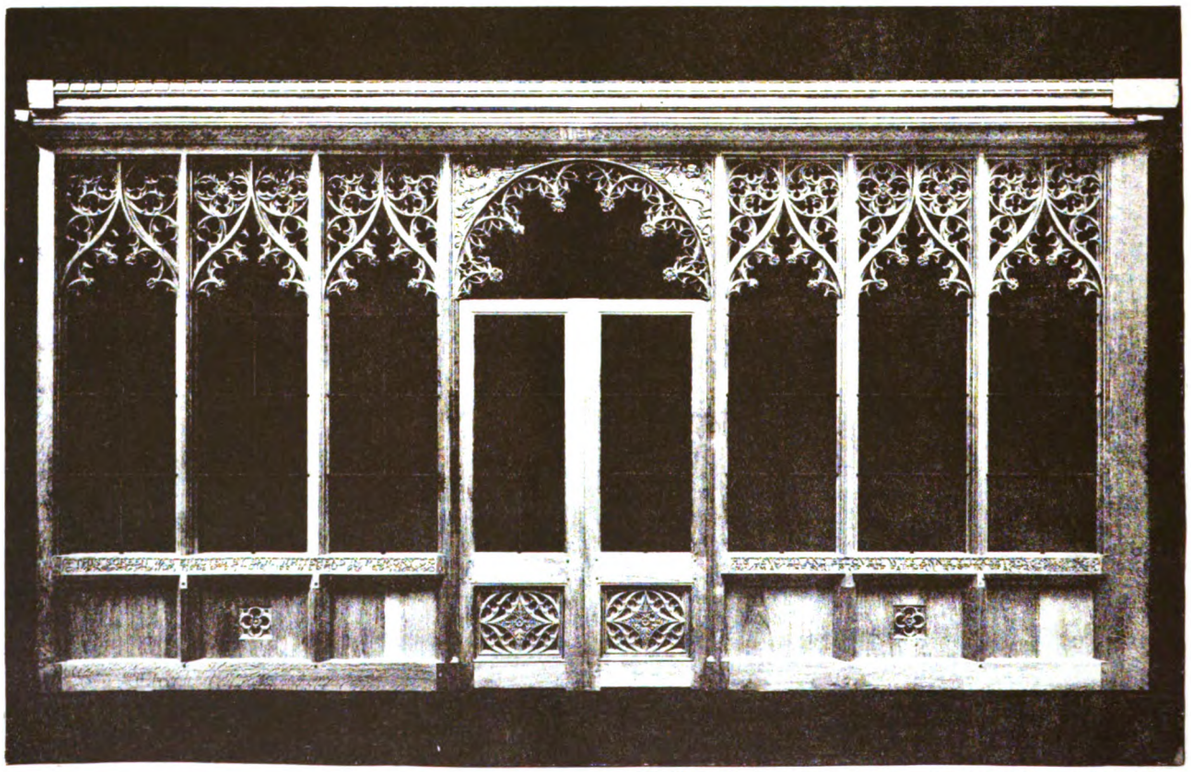
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DETAIL OF ROOD OVER CHANCEL SCREEN.



DETAIL OF SCREEN NORTH SIDE OF CHANCEL.



INK PHOTO. SPRAGUE HAYCOCK (PRINTERS) LTD 69 & 70 DEAN STREET LONDON, W.1

SCREEN EAST END OF NORTH AISLE.

ST JAMES CHURCH, OLDHAM, LANCS.

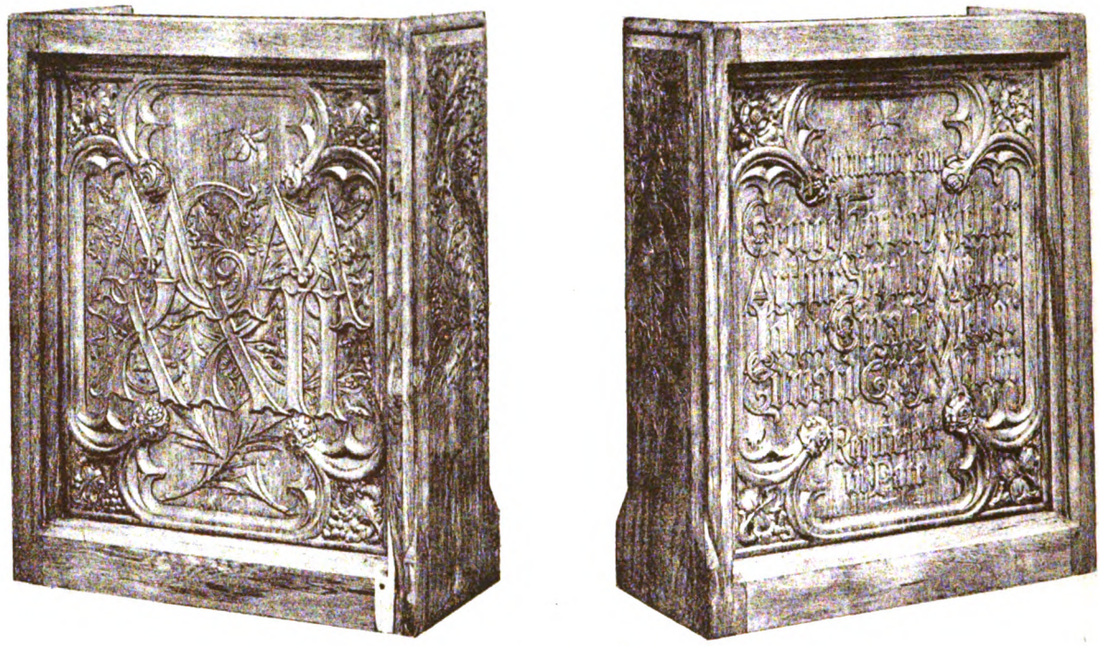
J. HAROLD GIBBONS ARCHITECT.

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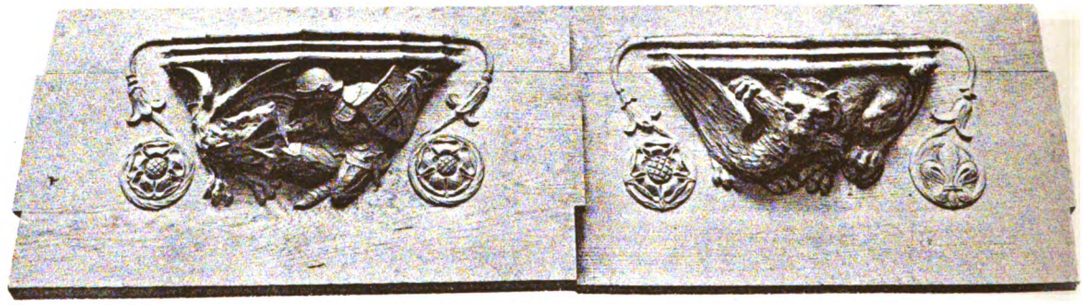


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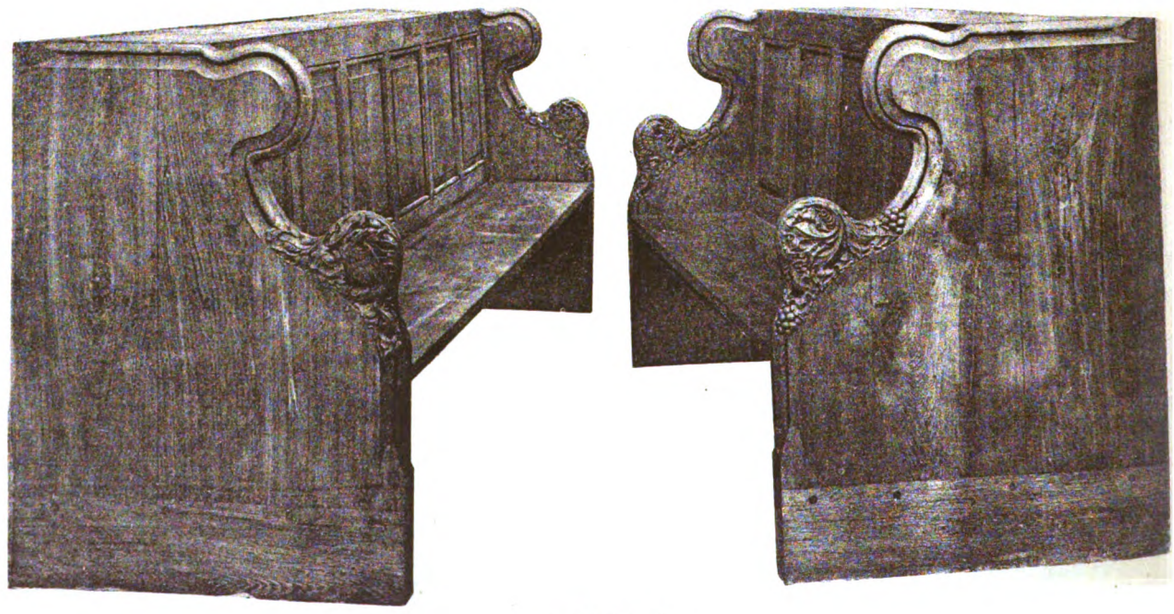
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CHOIR STALLS, FRONT OF CLERGY STALLS.



MISERERES UNDER CLERGY SEATS.



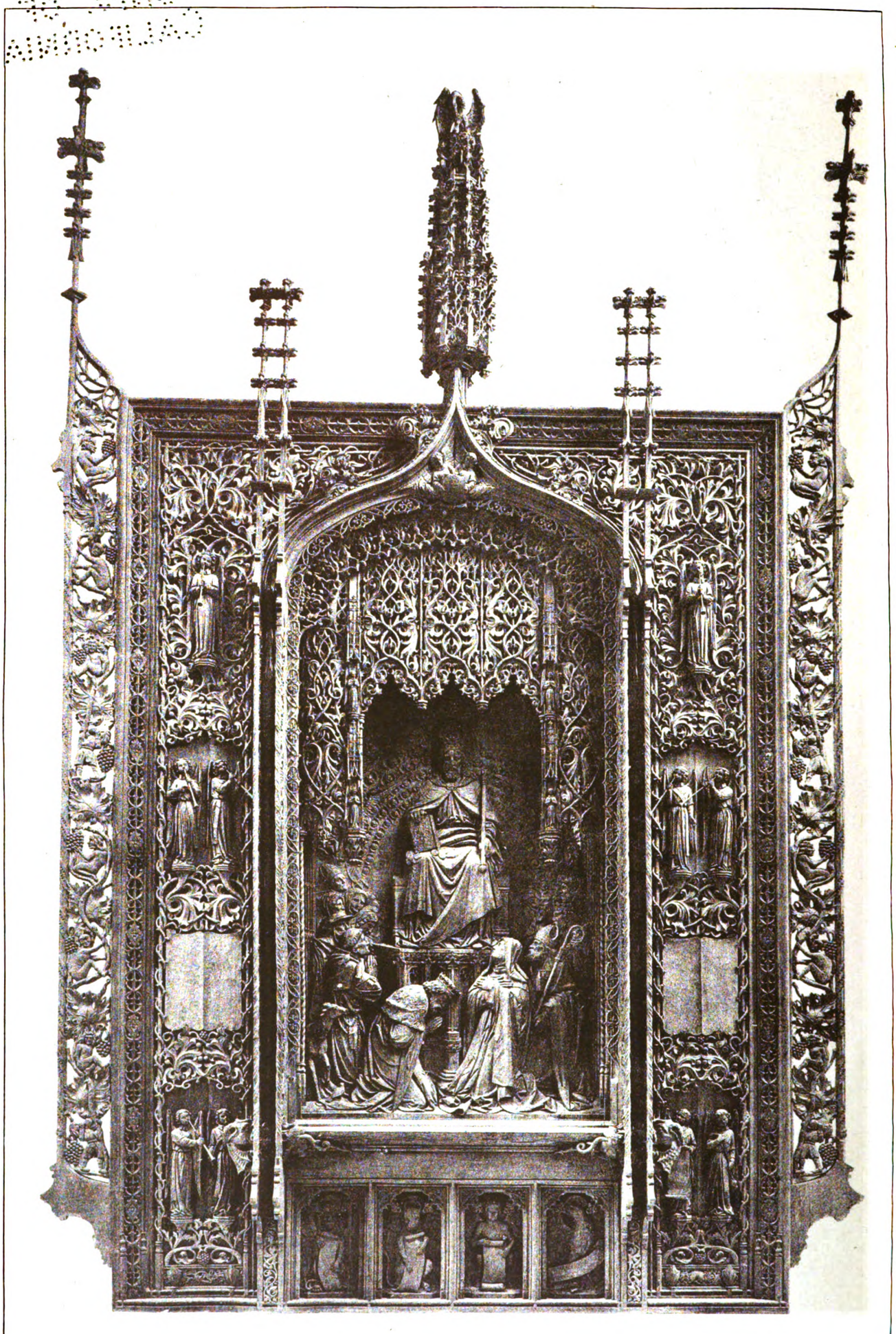
CHOIR STALLS.

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ST. CHAD'S CHURCH, FAR HEADINGLY, LEEDS.
MEMORIAL REREDOS OVER THE HIGH ALTAR.
J. HAROLD GIBBONS, ARCHITECT.

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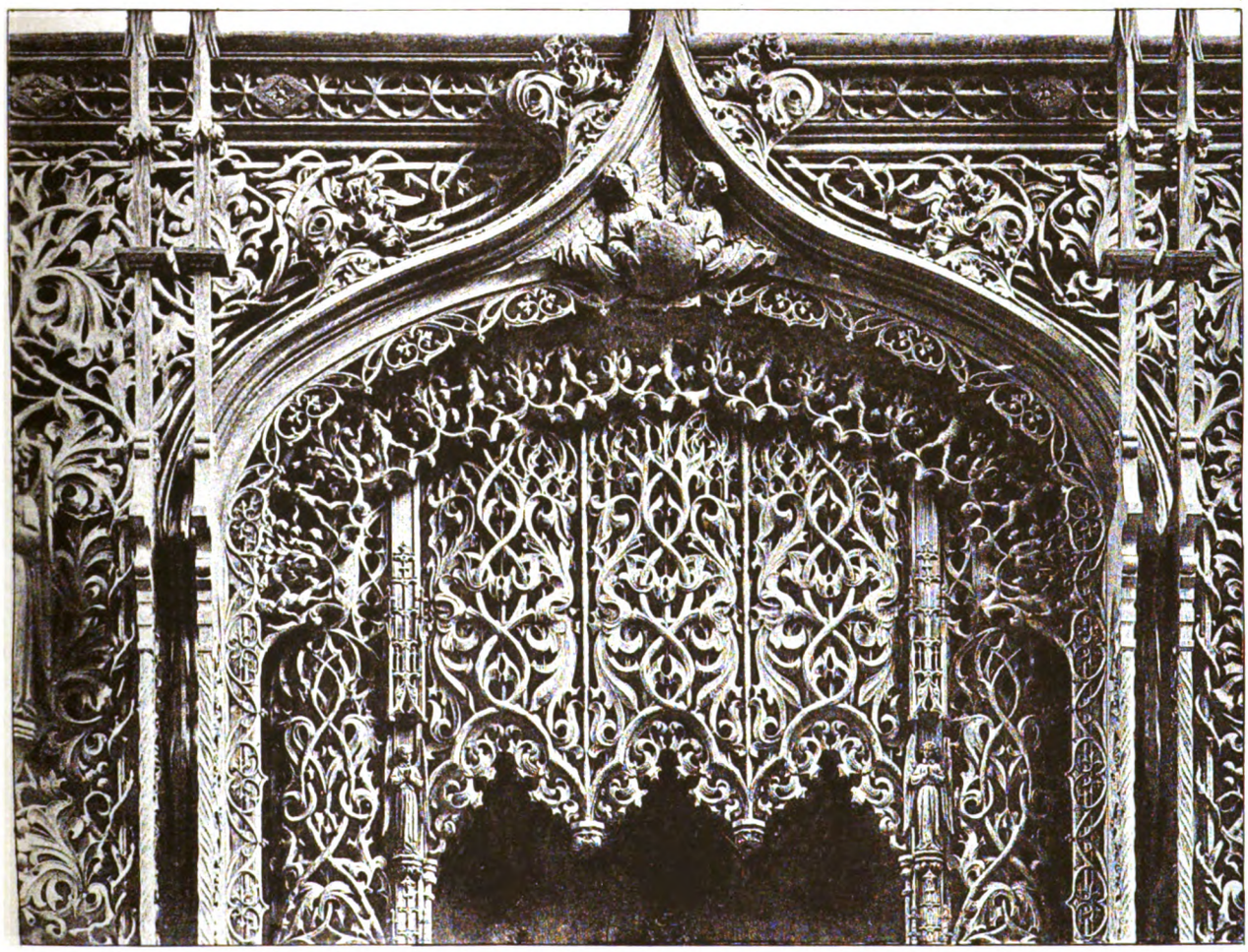
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DETAIL OF CARVING.



DETAIL OF CARVING.

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ST. CHAD'S CHURCH, FAR HEADINGLY, LEEDS.
MEMORIAL REREDOS OVER THE HIGH ALTAR.
J. HAROLD GIBBONS, ARCHITECT.

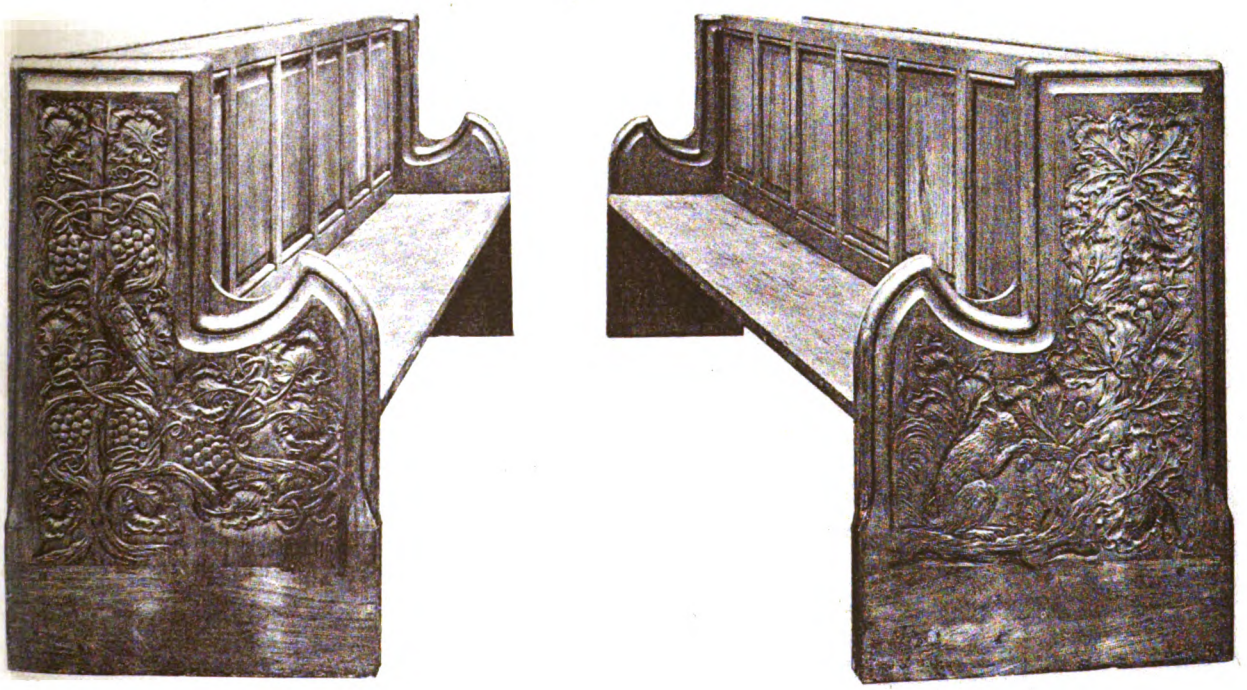
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CHOIR STALLS, BENCH ENDS.



CHOIR STALLS, BOYS' SEATS.

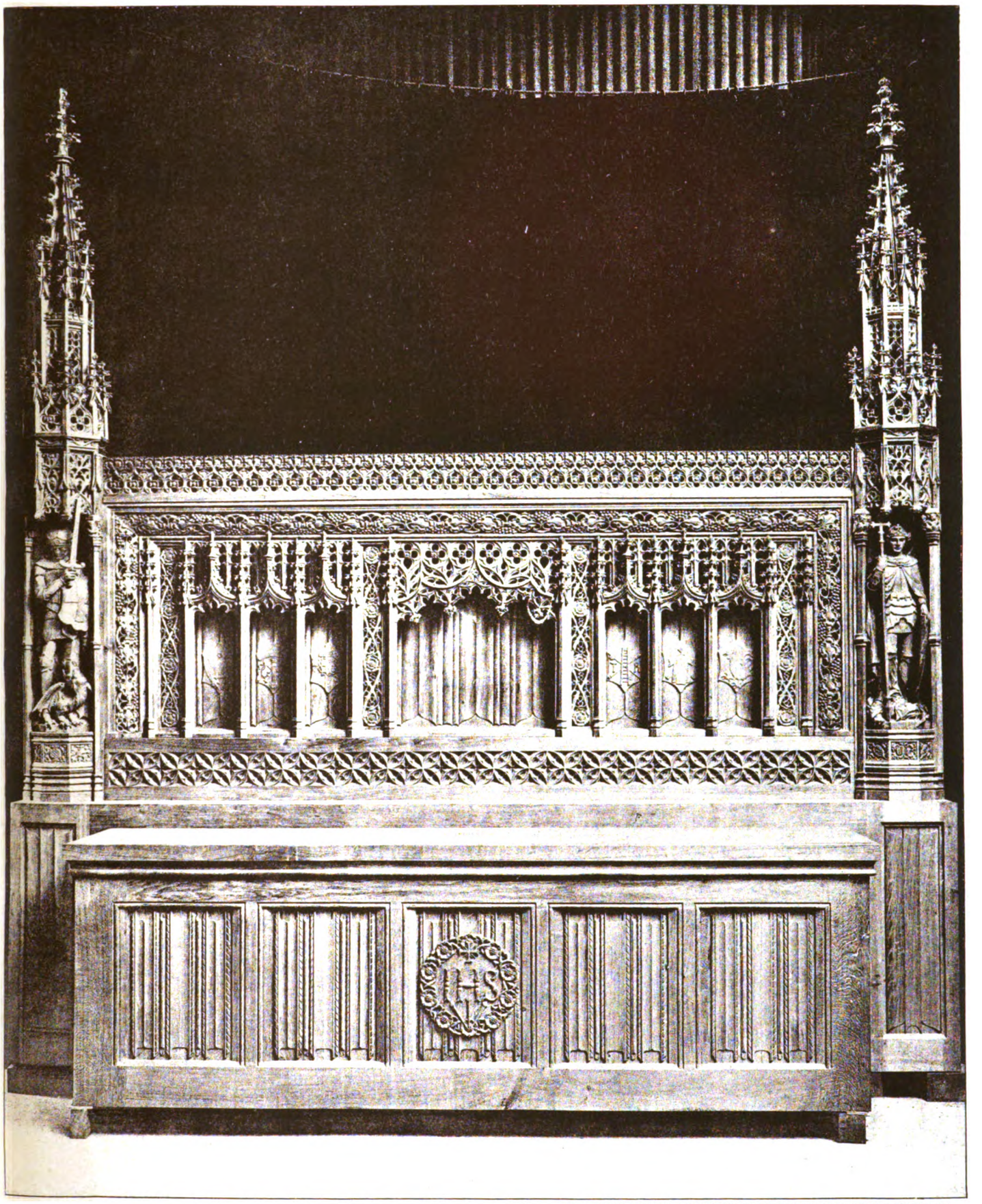
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ST MICHAEL'S CHURCH. BRAMHALL. CHESHIRE.

CARVED OAK ALTAR AND REREDOS

J. HAROLD GIBBONS ARCHITECT.

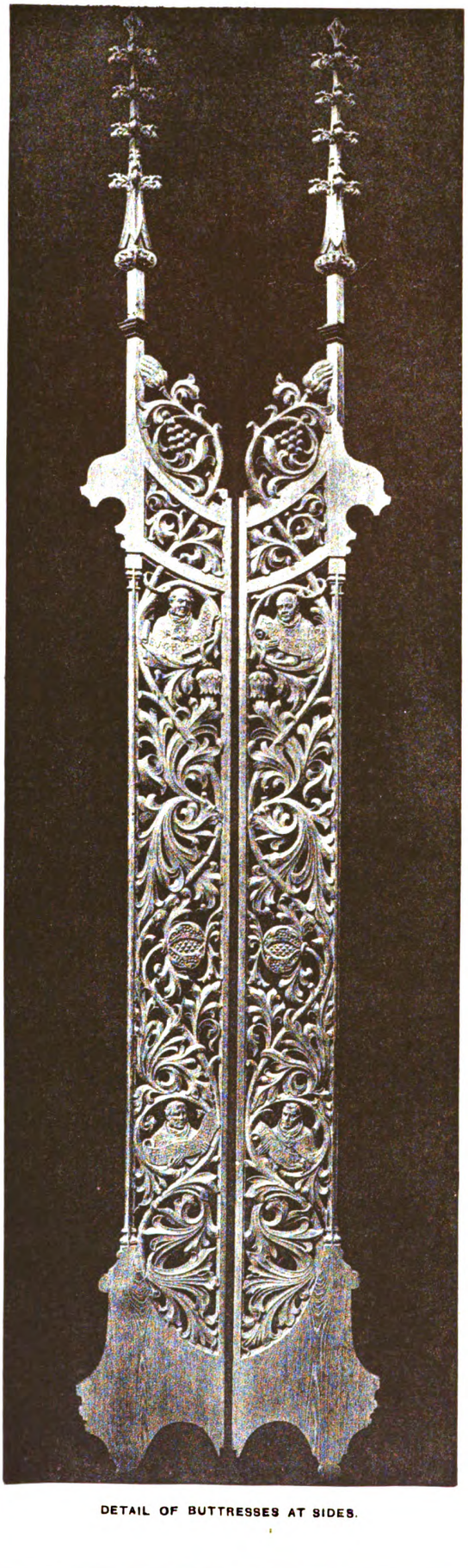
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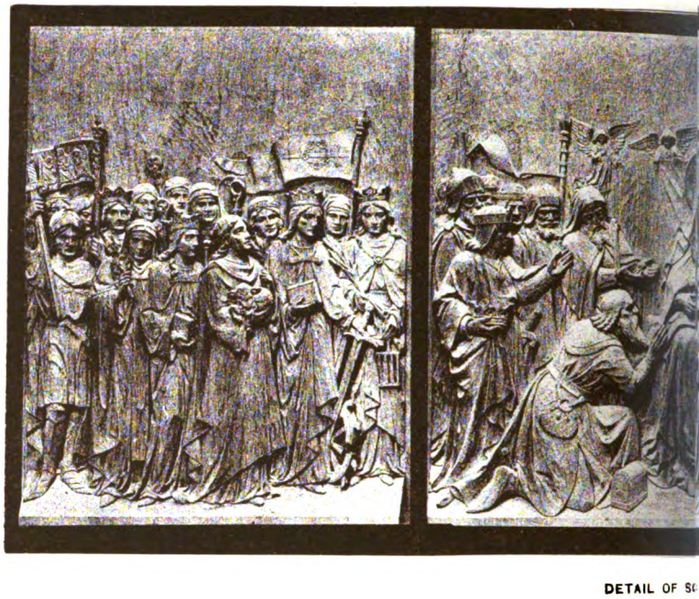
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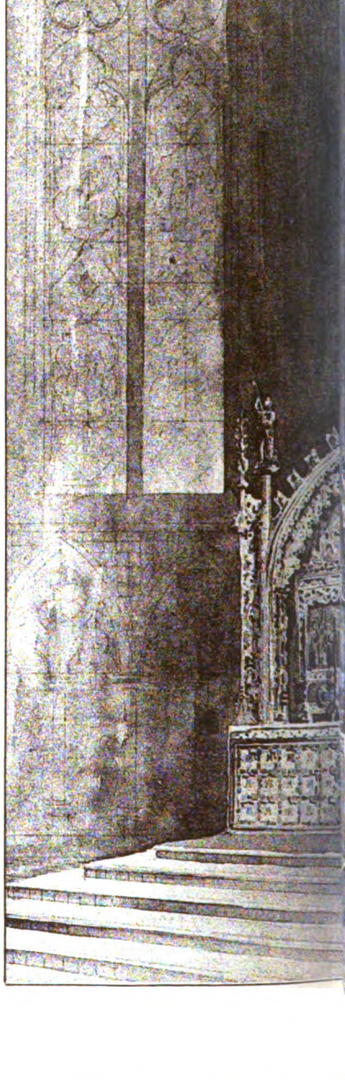
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DETAIL OF BUTTRESSES AT SIDES.



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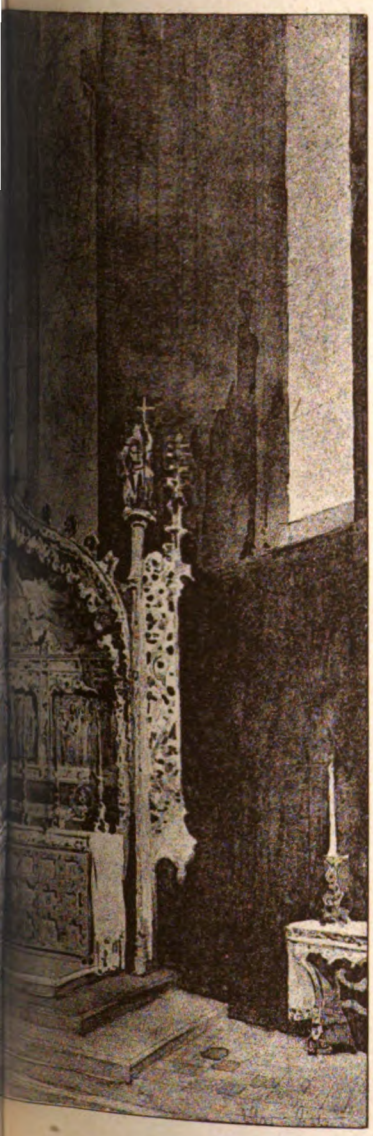


BURY PARIS
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J. HARO

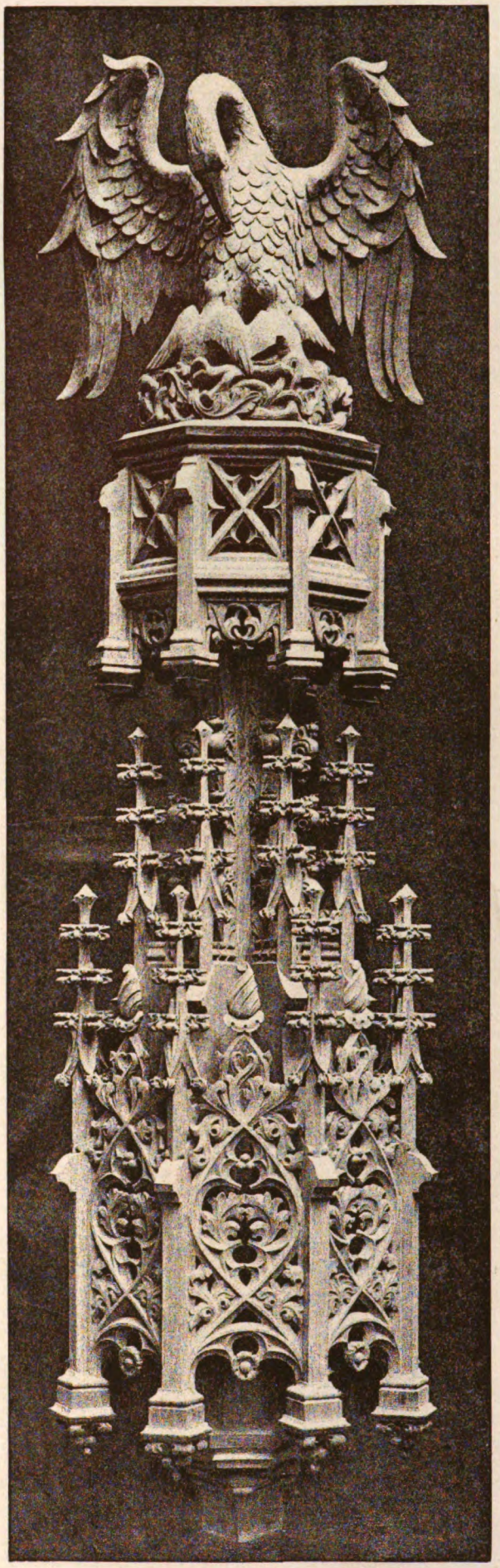
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URED PANELS.



RCH, LANCS.
THE HIGH ALTAR.
S, ARCHITECT.



DETAIL OF TOP PINNACLE.

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MEMORIAL TABLET DETAIL, ST. PETER'S CHURCH, MINSHULL-VERNON, CREWE. J. HAROLD GIBBONS, Architect

Bury Parish Church, Lancs.—The main panels of the reredos are sculptured in relief, and represent the adoration of the Saviour by the three kings, saints, and martyrs. The subject is arranged in three panels, the centre having St. Mary with Jesus and the three kings with their standard-bearers. The left-hand panel contains women saints and martyrs—SS. Ursula, Joan of Arc, &c., representing the women of the Allies. The right panel has soldier saints—viz., SS. Alban, Martin of Tours, &c.—typifying the men of the Allies who fell in the war. The tympanum above is carved in lower relief than the panels, and has adoring angels hovering over the infant Jesus. Above these is a small crucifix. The reredos is of oak and has been made by Messrs. R. L. Boulton & Sons, of Cheltenham, and decorated by Mr. G. Tosi, of London.

St. Chad's Church, Far Headingley, Leeds.—The sculpture of the reredos represents the worship of God by angels and saints as described in Revelation. The photographs illustrated were taken before the work was decorated. This reredos was made by Messrs R. L. Boulton & Sons, and decorated by Mr. G. Tosi.

The large east window, above the reredos, of which a portion is illustrated in the text, is also the gift of Mr. Atkinson. The window has five lights and represents the Creation. The glass has been fired and leaded by Messrs. Lowndes & Drury, and has been designed and executed by Miss M. E. Aldrich Rope, of Chelsea, a young artist who deserves to be better known.

St. Michael's Church, Shoreditch, E.C.—The altar was executed in 1912. It is of Tinos and Sienna marble, inlaid with lapis and mother-of-pearl. The reredos above has been erected as the parish war memorial. The old tabernacle has been enclosed in a larger one of burnished gold. A canopy is placed over the altar and predella. The whole of this is the work of Mr. G. Tosi.

St. Stephen's Church, Guernsey.—In the text is a small reproduction of the rood beam erected in this church as the war memorial.

St. Peter's, Minshull-Vernon, Crewe.—The tablet for this church was executed by Messrs. J. & H Patteson, and decorated in black and silver by Mr. Valette, of Manchester, who also decorated the Royton reredos.

The several works described above and illustrated in this number have been designed by Mr. J. Harold Gibbons, of Manchester.

The original drawings of Royton and Shoreditch are hung in the present exhibition of the R.A.



EAST WINDOW, ST. CHAD'S CHURCH, FAR HEADINGLEY LEEDS. J. HAROLD GIBBONS, Architect.

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The Value of Public Opinion.

The first of the Thursday afternoon series of Popular Lectures arranged by the R.I.B.A. Literature Committee was given on May 18 by Mr. Halsey Ricardo, who took as his subject "The Value of Public Opinion." Mr. H. M. Fletcher was in the chair.

In his second sentence Mr. Ricardo explained that the formula he had accepted as the basis of his position was that "modern architecture should be a developing structural art, mainly concerned with the building and improvement of cities, and the provision of the structures needed in civilisation," and that living architecture must be progressive—conforming with the requirements of the times. It was the quantity and quality of the thought inspiring it that raised building to the plane of fine and living architecture. The presence or absence of thought could be gauged by the layman who cultivated his powers of observation. Observation begets care—care begets insight into the conditions of production—and from thence follows judgment. Observation implied discrimination, and the classification of objects into those one cared for and those one did not. Also a study of the reasons for doing so. There was no need to encumber oneself with second-hand opinions as to "style" and "beauty"—technical information was another matter. The duty was to deal honestly and conscientiously with oneself, and then to apply such tests as one's knowledge and experience may supply. Such inspection was due to the architect and craftsmen who planned and erected the building. It was merely through carelessness that recognition was nowadays denied to them. It had been very different in the past. The present apathy, this shirking of one's concerns in citizenship, really mattered very much. It led to acquiesence in needless evil—to a kind of fatalism—to acceptance of things as they are—to false judgments and canons of taste.

If Professor Lethaby, for instance, was to courageously whitewash the interior stonework of Westminster Abbey, and so give a chance of seeing the church as it left the builders' hands, in its prime, in the time of Henry III, what an outcry of vandalism there would be—although it was more barbarous of us to allow the structure to decay, in a mantle of dirt and corrosive, obscuring the real charm of gaiety and lightness—than to preserve it with a protective coat of colour wash. We have allowed ourselves to get into an entirely sophisticated attitude towards our buildings—to imagine we prefer them dirty and patched—crippled war-worn veterans, whose bandages and patches we replace.

Observation, once, aroused, does not stop at the mere stage of notice—questions at once arise as to the purpose of the object, its history and its appearance. The power of analysis increases by the exercise of it. It will be found impossible to spend so much interest on the object without coming to some conclusions as to its real worth. These conclusions, of course, to be just and adequate, require understanding of the demand that brought it into existence. How far was the demand a creditable one? How far was it real or only supposed? So much was done, in the present day especially, in response to a supposed demand which was really non-existent. And the demands that actually exist, are not all of them justifiable ones. Besides, there are qualities difficult to gauge, difficult to express, of which we may be only sub-consciously aware: qualities as appropriateness to its position, to the dignity of its purpose, to its harmony with its surroundings. Questions like these were not answered easily though they may be immediately felt. And we have to consider how far tradition, contemporary criticism and prejudice played their parts in our impressions. The mind clings fondly to old associations, we part reluctantly with outworn features, and wisely, for they form the steps of our progression. We resent novelty until we understand the purport of it. That is what makes it so difficult for a layman to appreciate properly a new building. The novel features disconcert him: whilst the clean fresh appearance of the new work has its charm. But without some steady canons of criticism, some elementary tests, his estimate may be of no value. The novel features may be useless or merely for advertisement—whilst the fresh cleanness must in a short time disappear.

But before one attempted to define what these canons of criticism should be, the public should instruct itself as to what is really wanted. The discoveries of science, the widespread introduction of machinery, the research into the origins of life and development of species, the "higher criticism" of the scriptures have had their effect and rendered the attitude towards authority a more rarified and individualistic matter. Our duty towards our neighbour remained, however, a clear-cut thing, about which there was no doubt, except as to one's ability to perform the whole of it. This matter of caring that things should be rightly done was one of prime importance to ourselves and to our neighbours.

In the Middle Ages public opinion was unanimous in furthering the mason's art, the craftsman's skill; high and low, rich and poor, were eager to make sacrifices of land, money and time for the triumphs they were bent on securing. After the calamity of the Black Death there came a different feeling. Allegiance to the Church was no longer uncritical. The building craft organised itself into guilds, independent of Church domination, and technically progressed steadily in dexterity of craft. Gloucester Cathedral is almost a miracle of stone carpentry, and in Henry VII's Chapel we have the culmination of the mason's art. But the chapel is to the honour and glory of a monarch—not of St. Peter.

To the Press and to the pulpit, as well as to individual effort, one must look for the education of future public opinion. It will be easy if a start is made on elementary principles. Undoubtedly we have duties as citizens beyond our immediate circles. How then can we permit the squalor and filth in the streets such as we would not for an instant tolerate indoors? Are we so careless of our health and bodily maintenance that we must travel through avenues of shrieking advertisements defacing the countryside? If only we could get to care about the things we glibly talk about the battle would be won. A useful check could be put on the abuse of the wonderful powers of machinery by limiting its action to producing the necessary articles of life and forbid the manufacture of luxuries. A cup and saucer or a plate, for example, can well be made by machinery: but if it is to be decorated, the painting should be done by hand. A sideboard can be made substantially by machinery: but if there is to be any ornamental carving, that should be done by hand. The eye trained to scrutinise the value of accessory machine-made details must come to conclusion that no real gratification can be got from them: that they have added to the expense but not the value of the object. If this surveillance was constantly on the alert, what a quantity of trash would be spared! Man should be the master not the slave of his tools. A rebellion against the tyranny of the machine and repudiation of its extreme claims must mean that it would no longer pay to subordinate the abler craftsman to the pace of the machine.

Of recent years there had been a great awakening of man's duty to his fellows. This sense of civic duties and responsibilities called into being many societies for the improvement of town and country. They want help: the help given by a strong and wide co-operation in their aims, and they also want help financially. Doubtless the reason for the lack of support was that the individual does not see how he can himself take any part in the matter, he considers the problem is beyond individual capacity, and that he does not know in what direction to move. To such a one Mr. Ricardo would say: "Begin by using your eyes. Devote some small fraction of your time to the aspect of our thoroughfares, and make up your mind whether you are satisfied with them or not:

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and, if the verdict is against the present state of affairs, what is the improvement you would like to see." Meanwhile the same force of observation should be directed on the objects immediately surrounding us and on our homes. Every article or every prospective purchase should be submitted to the test given by William Morris: "Is it useful or do you believe it to be beautiful?"

It might be objected that the cost of articles fashioned under those conditions must necessarily be considerably increased. It must, of course, be so. But most people surrounded themselves with an unnecessary quantity of objects that gave trouble and expense to maintain, and that could not honestly be said to contribute to the enjoyment of life.

"The value, the worth of public opinion," said Mr. Halsey Ricardo in conclusion, "is the amount of passion there is in it. The force of public opinion is another matter: its effect is more immediate and more easily seen, and, unless there is an ideal impelling it, its effect can only be transitory. The ideal must be a high one, and it must be a comprehensive one, shared by high and low alike. In our time the board schools, public libraries, hospitals, and convalescent homes testify to an ideal—that no one, no matter what his or her station may be, shall, for want of money or opportunity, go uninstructed or uncomforted. This ideal of citizenship needs to be carried further. We have a country to be proud of: let us keep it so. We have cities we should be proud of: let us make them so. We all have our parts to play in the furtherance of this ideal. Let us be constant in doing, all of us, what we can, as befits a great people."

Royal Institute of British Architects.

The following are notes from the minutes of the Council meeting held on May 29:—

Relaxation of Building By-laws.—The Council have been informed by the Minister of Health that it is his intention to introduce legislation for the extension of Section 25 of the Housing, Town Planning, &c., Act, 1919.

The Armstrong College, Newcastle-upon-Tyne.—On the recommendation of the Board of Architectural Education the Council have decided that the first three years of the Diploma course of the Armstrong College be recognised on the usual terms as exempting from the Intermediate Examination of the R.I.B.A.

Retired Fellowship.—Mr. J. Douglass Mathews (F.) was transferred to the class of "Retired Fellows."

Victoria and Albert Museum.

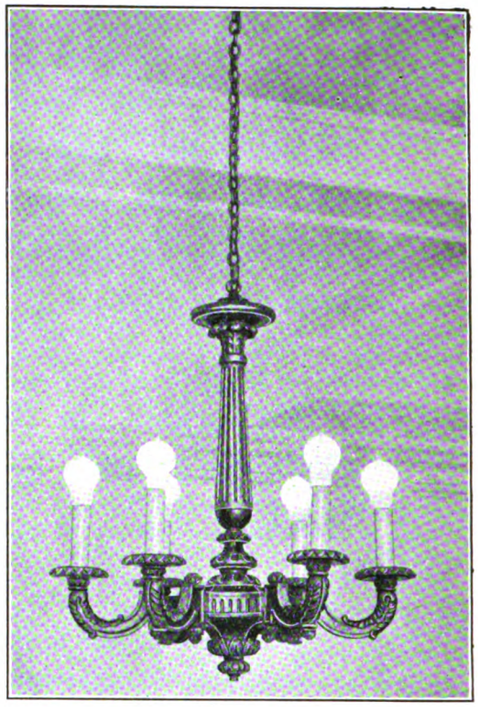
At the recent sale of the second portion of the Tomkinson Collection, the Museum was enabled, by the generosity of personal friends of the late Mr. Michael Tomkinson, to acquire an important series of examples of Japanese lacquer which have now been placed on exhibition in Room 41. In making the selection, special attention was given to the question of technique; and, in this connection, attention may be drawn to the specimens by Ritsuó and his school, by the late seventeenth century, in lacquered basket-work decorated with pottery, pewter, etc. A writing-set in engraved lacquer (chinkinberi) is of great interest not only on account of its workmanship, but as an example of Indian influence in Japanese ornament; and a fine example of seventeenth century gold lacquer, a writing-set in form of a keto, also deserves reference. In addition, the collection includes examples of lacquer in imitation of leather, pottery and metal-work, as well as illustrations of the use of this material in connection with cherry-bark and natural wood. These purchases are separately exhibited as a memorial to the late Mr. Tomkinson.

The Museum has also recently acquired several notable pieces of fifteenth, sixteenth, and seventeenth century lacquer as examples of the earlier stages of the development of the art in Japan.

The "Ediswan" Fullolite Lamp.

The Royal "Ediswan" Fullolite lamp is already well known to the electricity-using public for its many advantages in the elimination of glare and its perfect diffusion of light. The lamps have already proved their value, not only in the home and office, but in commercial spheres, where their glareless effect permits of their being used in window-dressing, etc., without the necessity of shading.

A particularly happy adaptation of the lamps is shown in the illustration reproduced here. The fitting shown is installed at the Oxford Street showrooms of the Rapson Tyre and Jack Co., Ltd. The fittings, which have been



supplied by Messrs. Măple & Co., Ltd., of Tottenham Court Road, are of a massive type, and are finished in gilt to harmonise with the general scheme of the showroom decoration, which is in gold and black. The candle flames are 40-watt Royal "Ediswan" Fullolite lamps, and their pleasantly glareless and perfectly diffused light enhances the appearance of the fittings and ensures a perfect and practically shadowless distribution of the light over the whole of the large showroom area.

We believe that this is the first instance in which these lamps have been adopted for this combined decorative and illuminating purpose, and the effect gained has certainly justified the experiment.

"The Architect" Fifty Years Ago.

JUNE 8, 1872.

CHURCH IN THE ISLE OF DOGS.

A church in the Early English style is now in course of erection from private funds. The dimensions are 106 feet long, 60 feet wide, with a general height from footings to ridge of 61 feet. The plan comprises a nave and two aisles; the south transept contains the organ, and the north transept the accommodation for the school children. The bays on either side of the communion-table are arranged one as a porch and the other as a vestry. The western window has a pair of coupled lights, with a circular cinquefoil in plate tracery above, and in the gable is another separate light, in the form of an elongated sexfoil. The eastern end has a group of three plain lancets. The facing is of stocks, relieved by bands and arches of black, white, and red bricks, in various contrasts. These have been supplied by Mr. Barfield, of South Audley Street. The dressings are of Bath stone, and a damp course of Engert & Rolfe's asphalted felt is laid throughout the walls. The roof is covered with Whitland Abbey green slates. Messrs. Dove Bros., of Islington, are the contractors, at the amount of 5,255*l*. The architect is Mr. A. W. Blomfield, of Cavendish Square.

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AUSTRALIA HOUSE.
A. Marshall Mackenzie & Son, FF.R.I.B.A.
Architects.

From an original Etching by
Christopher M. Shiner.

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General.

Mr. T. Dale is the architect for a house and garage about to be erected for Mr. Frank B. Allen in Uppingham Road, Leicester, by Messrs. Coltman Bros. at a cost of £1,445 7s. The quantities were taken out by Messrs. R. E. Carpenter & Son, of Leicester.

Major Charles James C. Pawley, V.D., of Melbury Road, Kensington, W., and of Victoria Street, Westminster, S.W., architect, the originator of the scheme for an Empire war memorial at Westminster, who died on February 7, aged sixty-eight, left estate valued at £85.

Messrs. J. G. T. West & Son, Abingdon, are the architects for additions and alterations to be carried out at the residence of Mr. R. H. Betteridge, at Milton Hill, near Abingdon. The tender of Messrs. Benfield & Loxley, of Oxford, amounting to £2,896, has been accepted for the work.

Newcastle Town Improvement Committee are about to ask the Government what financial assistance may be expected if the local authorities of Newcastle, Tynemouth, Wallsend, Earsdon, and Whitley Bay proceed with the projected new road to the coast, $8\frac{3}{4}$ miles long, which it is estimated would cost £470,000.

Mr. Thomas Hastings, of New York, Royal Gold Medallist, 1922, will arrive in England about June 23, accompanied by Mrs. Hastings and several friends. He will be present, with Mrs. Hastings, at the Council dinner on June 26, and he will receive the Royal Gold Medal in person at a general meeting on the same evening.

Sir William Noble, who has just retired from the position of Engineer-in-Chief to the Post Office, has accepted a seat on the Board of the General Electric Co., Ltd. We understand that Sir William Noble proposes to devote his attention mainly to the development of the telephone and wireless sections of this important manufacturing concern.

The Shrewsbury Town Council has adopted a report for the proposed reconstruction and widening of the English Bridge crossing the Severn on the London and Holyhead Road and its approaches. The total estimated cost is £77,000. Subject to a similar decision being arrived at by the Salop Council, the Shrewsbury Town Council will contribute 25 per cent., subject to a grant of 50 per cent. of the whole cost from the Ministry of Transport.

No opposition was offered to an application by the Elland Urban Council for borrowing £26,948 for works of sewage disposal, at an inquiry conducted by Mr. M. G. Weeks, on behalf of the Ministry of Health. The Clerk to the Council explained that the money asked for was required for the construction of new sewage works and additions to the present works. In order that the best scheme could be secured the urban authority had invited competitive designs, for which prizes had been offered. Mr. William Nunns, of Bingley, architect to Sir Titus Salt, was the successful competitor.

The Committee of the Incorporated Church Building Society, in the annual report for 1921, record an increase of £1,250 in the Society's income as compared with the preceding year. A legacy of £1,000 was mainly responsible for this increase. The history of the Society shows that it has been instrumental in aiding in the erection of no fewer than 2,788 new churches, and in assisting in rebuilding, enlarging, or otherwise improving the accommodation in 7,072 other churches or consecrated chapels of ease. By these means more than two million additional seats have been secured. There has been a still further increase in the amount of the funds held on trust by the Society for the repair of churches; the number is now 427, and the amount has reached £111,804 16s. 10d., Consols; £18,531 4s. 2d., 5 per cent. War Loan stock; besides £18,347 4s. 4d. invested in other securities.

FURNESS HOUSE.—The marble work, mosaic paving, and tile wall-linings at Furness House, Leadenhall Street and Fenchurch Street, E.C., which was illustrated in our issue of June 2, was carried out by the Art Pavements and Decorations Ltd., St. Paul's Crescent, N.W. Messrs. Bellman, Ivey & Carter, Linhope Street, Dorset Square, N.W. 1, supplied the four large columns of Scagliola marble to be seen in the main hall, and five smaller columns on the ground floor and entresol, all surrounding steel concrete cores without showing joints. Messrs. Fenning & Co. carried out the general marble treatment in the main office, circular staircases, &c. Our photographs of Furness House were the work of Sydney W. Newbery, of Brixton.

Sir A. Mond, Minister of Health, stated in the House of Commons last week that it was not proposed to make any departure in the Government's present housing policy. The Government would not sanction any further houses under the existing scheme.

The Grangemouth Dean of Guild Court have approved plans submitted by the Scottish Oils, Ltd., for forty-eight houses to be erected at the south-east side of King Street. Mr. E. A. Ridings, engineer and architect, Scottish Oils, represented the petitioners. The houses now proposed to be erected will cost between £650 and £660 each.

Large extensions to Halifax Post Office are to be begun this year, and completed by 1924. These extensions, held up by the war, include the provision of a telephone exchange, with the latest automatic telephones, an extensive sorting-room, and general accommodation. Land and property for these enlargements have been acquired in Old Cock Yard, near the Post Office.

Dundee Garden City Association, Ltd., have had plans approved for their first ten houses to be erected on Baldovan estate, fronting the Kingsway between Strathmartine Road and the Caird Park. The entire scheme, which has been approved by the Board of Health, provides for eighty-four houses of the cottage and villa type, which will be built over an area of about ten acres.

The Blackwell Prize of thirty guineas, open to unrestricted competition, will be awarded in 1923 for the best essay on "The Sculptured and Inscribed Stones of the North-East and North of Scotland." It shall be in the power of the examiners to withhold award if no candidate attains a sufficiently high standard. Essays must be lodged with the Secretary of the Senatus, Marischal College Buildings, Aberdeen, on or before January 1, 1923.

Newcastle Corporation Housing Committee last week considered the erection of houses on the Pendower estate, the Ministry of Health having objected to any further dwellings being put up at the price suggested by the committee. Representatives of the Building Guild, who are at present erecting sixty-two houses at Pendower, were present, and agreed to complete the scheme of 232 houses at a substantial reduction on the original accepted estimate. They also agreed to erect a smaller number of dwellings on a smaller percentage basis. These offers are to be submitted to the Ministry, with a recommendation that the Guild be allowed to proceed with the whole scheme at the reduced price.

At the last monthly meeting of the Council of the Institute of Scottish Architects, Mr. A. N. Paterson, the President, stated that the Institute was to be congratulated on attaining recently a royal charter. A grant was voted towards an important exhibition of American architecture which is to be held in the M'Lellan Galleries, Glasgow, from June 21 to July 5. Correspondence had taken place with the R.I.B.A. in respect of their proposal to award annually a medal for the best street frontage erected during the previous year in London and the principal cities. The election took place of one Fellow, four Associates, and seven students. The Education Committee reported having approached the central educational institutions with suggestions on the subject of the curricula necessary for obtaining a diploma and other matters which are being considered. The report of the President and Council for the past year was considered in draft and approved, and thanks were expressed to the committee and editors on the completion of the publication of the first volume of the National Art Survey drawings.

Evesham Abbey.

An interesting sale will be held at Evesham in a few weeks' time, when, amongst other properties owned by the Rudge family, will be offered a portion of the site of the famous old Abbey of Evesham and the historic Almonry and Gatehouse, now two private houses, with all the old architectural characteristics well preserved.

Evesham, of course, is replete with historical associations, and it may be remarked that the market gardens for which it is now so famous were in cultivation by the monks of Evesham Abbey more than a thousand years ago. Little remains of the Abbey but a few ruins.

The sale will be conducted by Messrs. Yates & Yates, of Hanover Square, W.

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Conferences and Suggestions.

THE Royal Institute has held its conference at Cardiff, and the members present have listened to papers, among which that delivered by Major Barnes was by universal consent the most notable and interesting; for are we not all addicted to the belief that there is some short and easy cut to the fulfilment of our desires? And do not a great majority of our colleagues think that Registration preceded or followed by Unification will place us on the highway to professional achievement? We all have hopes, and those of us who have most are to be envied; for we live in an enchanted region only separated by any easily surmounted barrier from the land of promise. After Registration and Unification will come the universal desire of the public to avail themselves of our services and pay us our fees, and the country will groan under the weight of building materials used under our directions! Representatives of the public speak pleasantly of us in after-dinner speeches, and we see ourselves among the honoured of mankind, raising dream cities for an enthralled and enthusiastic population.

Those who may be more sceptic, or who have less faith may think that the power and dignity of the Institute depend not on its numbers but the reputation and standing of the men of which it is composed, and that our chances of greater influence with the public depend not on any legal status which may be accorded to us, but on the conviction of those who employ us that we are the best instruments by whose aid they may achieve the ends they have in view, but such convictions are cold comfort for those who think that a quicker process may give them what they desire. We have sometimes wondered whether the future will afford the architect greater or smaller opportunities than he has had in the past; whether the public, on whom our hopes rest, will take greater or less interest in building as the years pass, and how far the growing stress of modern life does not militate against the appreciation of the most static of all the arts. We might—had we had power—have prohibited the use of the motor-car in our own interests, as theologians banned the promulgation of the discoveries of Galileo. For the man of moderate means who aspires to keep a car usually contents himself with a smaller house, while he becomes less attached to any particular locality, having added freedom to get away from it. Every multiplication of the interests of modern life in some way or other tends to reduce the importance of permanent building, and with every generation we become more and more nomadic in our habits, nor is this country any longer like America in a state of rapid expansion, while the War has crippled both our public and private finances, and the whole tendency of modern legislation is rather to impair confidence in the maintenance of rights of property than to confirm them. These are among many considerations which occur to us when we hear discussion of measures and methods of appealing for a greater share of public consideration than is now accorded to us. Is the state of the country and the disposition of the public such that it is likely to be much affected by anything but the "peaceful penetration" of individual activity of the architect in relation to his clients? If we think of launching a campaign to secure public notice and support—and the essence of a great many architectural addresses seem to us to point to the desire to do so—have we chosen the psychological moment rightly, or should we not be well advised to wait until the after-effects of the fatigue and loss of the War have begun to pass away? Are we not possibly troubling a convalescent too soon with the discussion of business matters? Can we propose a clear and definite panacea for any evil from which the public suffers, and if not, should we not wait our time? Cardiff itself affords an object-lesson of the kind which is of greatest value. The town itself, with the exception of the Castle, St. Mary's Church, and a few other buildings, would not take a high place in the ranks of our provincial cities, and the insight which led its leading citizens to acquire Cathays Park and group its public buildings there was remarkable. A well-conducted and wisely assessed competition gave the city a town hall and law courts of unusual merit and interest, and the buildings subsequently erected are on the whole worthy of the unusually fortunate start which was made. But had Alfred Waterhouse failed—as many assessors have failed—to select a design of outstanding merit, the whole story might have been a very different one. Architects, whether as assessors or designers, have frequently had the ball at their feet and failed to utilise their opportunities. The public have willingly left these responsibilities in our hands, opportunities we have too frequently misused. We believe if our profession had proved itself more efficient in the discharge of its task of designing single buildings it would be given a freer hand in carrying out those larger schemes which come under the heading of town planning. If we are right in this, our better standing with the public depends more on individual ability than on any general powers or new status which can be given to us. The majority of public buildings which have been erected for the last fifty years have been the outcome of competitions conducted under our own rules and judged by members of our own profession, but we doubt whether it can be said of them that they reach a much higher average than that of private buildings, which are the outcome of the direct choice of architects by laymen. If this is the case the fault lies at our own doors, and cannot be attributed to the want of appreciation by the public.

We say without hesitation that had the right decision been made in twenty-nine competitions out of thirty our public buildings would be of a far higher standard than they are, but we doubt if it can be said with truth that the right award is given in more than two cases out of five, and if this be so we have, when endowed with power and responsibility, thrown our chances away. The opinion of architects is

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frequently not sought in matters of business and finance connected with building because too many architects are incompetent or ignorant of conditions governing these matters, which are all important to the employer, but which cannot be remedied by giving architects a new legal status. We may truthfully say "the fault is not in the stars, but in ourselves," and the remedy must come from within, and not from without our ranks.

We believe that the experiment which has been so successfully tried at Birmingham, by which architects are allowed to express their views on the subject of designs submitted to the Corporation—an experiment which has been the outcome of unofficial influence—points the way to a method which might well be employed elsewhere, and would do much good by bringing architects into closer understanding and sympathy with the public, and such contact is probably more useful than it would be if it rested on a formal and legalised basis. In the same way the good done by an architectural conference probably consists not so much in papers read or resolutions passed but in the strengthening of ties between individuals and their clearer appreciation of the aims and difficulties of their colleagues.

We should like to see the public energies of the profession diverted into channels which we believe would secure the support of many, because they are easily understood public wants instead of restricted and doubtful professional ones. We would summarise some of these as being the restriction of the poster advertisements which disfigure our towns and buildings; the compulsory extension of the provisions of the Housing and Town Planning Act to those districts which are in process of development to save their ameneties and character; and measures aimed at the abolition of the smoke nuisance. These are all measures affecting the welfare of the whole community, and not the doubtful advantage of a small section of it; while it is within our power, if we have the will, to radically reform the conduct of public competitions.

Illustrations.

THE NEW RESTAURANT, ST. JAMES'S COURT FLATS, BUCKINGHAM GATE. A. B. Llewelyn Roberts, Architect. (Messrs. Collcutt & Hamp, Architects.)

BUSINESS PREMISES, CALCUTTA. H. Austen Hall Architect.

THE BENGAL LEGISLATIVE COUNCIL CHAMBER, CALCUTTA. Massy Morgan, Armstrong & Dawson, Architects.

LLOYDS BANK, LEICESTER SQUARE, W. Edward Maufe, Architect.

The drawing we illustrate, which is now in the Royal Academy, shows the new ground floor frontages to an old building at the corner of Coventry Street and Wardour Street. The work has been carried out in Portland stone, with steel windows lined in English gold. The doors are hardwood, ebonised and lined with gold. A strong and dignified façade has been obtained which yet conforms with the lines of the existing building over; a particularly awkward existing corbel conditioned the large projection over the corner entrance. Internally the walls are of French stuc, with black marble skirting. The public space is paved with large squares of Hopton wood, with a black marble border. The fittings and furniture are of mahogany, designed by the architect. The lighting of the banking hall is semi-indirect, the fittings being of bronze, with "moonstone" glass bowls. Mr. Edward Maufe, M.A., F.R.I.B.A., was the architect.

Messrs. Trollope & Colls were the general contractors, and also carried out the fittings. The following were sub-contractors: Messrs. W. Aumonier & Son (stone-carving and fibrous plaster); Messrs. Albany Forge, Wainwright & Waring (steel windows and shop front); Messrs. Henry Hope & Sons, Limited (heating); Messrs. Medway's Safety Lift Company, Limited (one electric passenger lift fitted with car switch control, safety locks and all latest improvements; also one hand bullion hoist, specially designed for easy working); The Aston Construction Company, Limited (steelwork); Messrs. Charles Smith & Son (ironmongery); Messrs. Dent & Hellyer, Limited (sanitary fittings); The Art Pavements & Decorations, Limited (pavings); Messrs. Stevens & Adams, Limited (woodblock flooring); The Chatwood Safe Company, Limited, and The Ratner Safe Company, Limited (strong-room fittings).

COMMERCIAL CABLE COMPANY, WORMWOOD STREET, E.C. Edward Maufe, Architect.

The illustration which we produce to-day of the new building erected in Wormwood Street, in accordance with the designs of Mr. Edward Maufe, M.A., F.R.I.B.A., for the Commercial Cable Company, will be the head office for their executive and operating staffs for the United Kingdom. The Commercial Cable Company is, as is well known, a trans-Atlantic cable company, owning five cables, connecting the United States, Canada and Great Britain.

The first floor of this building forms the instrument room, which is one of the finest instrument rooms possessed by any cable company in any part of the world, and will place London in instantaneous communication with New York, without any manual relay whatsoever.

It will be apparent to our readers that the erection of this fine building in Wormwood Street will in a short space of time entirely transform the character of the street, as the advantages to merchants and financiers of being in such close proximity to a cable company will be immediately appreciated.

An old warehouse which was on the site was gutted, and though the main structure, window openings, &c., were retained, it has been transformed by the architect in such a manner that an unusually dignified building has been achieved, a worthy addition to modern public architecture.

The Atlas White Portland cement used on this building illustrates the useful quality of this material, which while it has the same general composition as Portland cement is free from those elements which render the latter grey, and is pure white in colour, as well as being finer ground it does not stain materials with which it comes in contact, and in addition its colour is absolutely permanent.

The general contractors were Messrs. Walter Lawrence & Son, Limited, and this firm has also executed the interior fittings to the architect's designs.

The following were the sub-contractors: Messrs. Smith Walker, Limited (constructional steelwork); Messrs. Henry Hope & Sons, Limited (steel casements); Messrs. Young, Austen & Young (heating); Messrs. F. G. Edey & Co. Ltd. (electric lighting and power); Messrs. John Tanner & Son (exterior Atlas white cement work and interior French stuc); Messrs. Art Pavements & Decorations, Limited (staircase, pavings and tiling); Messrs. Haywards, Limited (staircase balustrading); Messrs. Crittal-Freeman Bronze, Limited (bronze doors); Messrs. Birmingham Guild, Limited (bronze lettering, &c.); Messrs. James Gibbons, Limited (ironmongery, steel shelving and steel lockers); Messrs. Hobbs, Hart & Company, Limited (strong-room door); Messrs. Waygood-Otis, Limited (lifts).

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Notes and Comments.

The Unwisdom of Wide Roadways.

The lay-out of the portion of Cathays Park, Cardiff, immediately fronting on the Town Hall and Law Courts is an example of what should be avoided. Messrs. Lanchester and Rickards produced an admirable scheme for the lay-out of the Park, but it was unfortunately not adopted, the proposals of the late Borough Engineer being carried into execution. One would imagine that the immediate neighbourhood of the Municipal buildings was a centre of enormous traffic judging by the immense width of the roads adopted and the small islands placed in them, instead of which they are removed from the main lines of communication. Such a lay-out as that adopted, besides being very costly, tends to diminish the importance of buildings in the immediate vicinity. It forms a standing example of the necessity of placing such work in the hands of skilled experts instead of leaving it in the hands of those who have studied the construction and upkeep of roads rather than that of their orderly design.

The Manchester Art Gallery.

The annual report of the Art Committee of the Manchester Corporation includes the following recommendations of a sub-committee which was appointed to visit other galleries, and which reported on the importance of exhibition rooms being on a smaller scale than is found in the majority of public galleries, with walls of which the height bears some relation to the pictures, which to be properly seen should, of course, be hung upon it in a single line level with the eye. Also on the advantage of attractively setting out small groups of choice objects in the various sections of the museum for the public to see, instead of filling the rooms in a way which only tends to confuse the visitor, and the necessity for keeping the bulk of the collections stored, not in the exhibition galleries, but in rooms contiguous to them, where they will not be obtruded on the general public, but will always be accessible to anyone for purposes of study and research.

We believe that it may be advisable in the future, for reasons of economy, to considerably reduce the average height of rooms in public buildings where they do not serve for meetings or the accommodation of great numbers of people. We know that in domestic work generally the height of rooms has been greatly reduced during the last thirty years, and that a height of eight feet to eight feet six inches is now common in large houses where ten feet would have been considered as a minimum height fifty years ago. By the adequate distribution of windows and of heating facilities high rooms have become unnecessary, a great economy of cost thereby being rendered possible, and we believe this might have an application to many classes of public buildings.

Economic Cooking Appliances.

The Fuel Research Board have employed Mr. A. H. Barker to investigate the relative heating efficiency of different stoves and appliances used by the working classes. He judged efficiency by the percentage of heat units in the fuel actually employed in heating, and arrived at the conclusion that the combination of several different functions in one range renders each such function excessively extravagant when considered alone. The combination is only relatively economical when all the functions are in use simultaneously. Of the various types in common use, the lowest total efficiency was about 5 per cent., the highest about 11 per cent., and the great majority about 7 per cent. Thirty per cent. was easily obtained in apparatus of special design.

In the individual applications some very low results were found. Of all the ranges tested the lowest efficiency in oven transmission was 1 per cent., and the average of all commercial ranges 2½ per cent. Hot water was better, the average being from 11 to 12 per cent., against, however, an efficiency of 45 reached in a range designed by the investigator.

In the interests of economy, each portion of the plant should be designed for maximum efficiency separately. The general tenor of the report is towards the recommendation of building systems such as have been devised in New York, even in cottages, and have been adopted in the modern types of blocks and flats where there is a communal heating system, at least for hot water and warmth, which we hope it may be possible to adopt here in the near future.

Housing.

The great schemes started by Dr. Addison are going through a process of liquidation. Merchants have had to be settled with for materials purchased and not wanted, and now the various local authorities have to dispose of all the claims of builders arising out of the reduction in the number of houses. Later they will have to turn their attention to claims of architects.

A bargain to build 1,000 houses is a very different thing from a bargain to build 200, for example; and when the number to be built is much curtailed serious questions must arise as to the compensation due to the contractor and to the architect.

In the same way that a builder as a rule can build a large number cheaper than he can build a smaller number, so also an architect can plan and supervise a large number at a less fee than a small number. Both in the case of builders and architects the profit or fees were generally arranged for a quantity.

In the form of contracts issued by the Ministry there is a clause which runs as follows: "If for any reason it appears to the employers expedient that the agreement should be determined, the employers may, without assigning any reason for their action, but subject to the consent of the Minister of Health, determine the agreement by giving not less than fourteen days' notice to the contractor."

This clause was inserted, as any builder would suppose, for the purpose of terminating contracts on some valid ground, such as dissatisfaction with the methods or work of the contractor. It could never have been intended to invite tenders for a large number of houses with the intention of building a small number. That would have been most dishonest, nor would any builder tendering anticipate that an employer would without good reason perpetrate so foolish an act as to stop the works when the houses were in different stages of progress and bring in another contractor to complete houses at greatly additional cost.

The local authorities are not so acting, but the clause is apparently being used by the Ministry for the purpose of reducing the number of houses agreed to be built, and the contractor who was to have the protection of the Minister, whose consent by the terms of the clause the local authority had to obtain before terminating the agreement, has lost that protection, for local authorities appear to be acting under the direction of the Minister.

Many builders are suffering very heavy loss in consequence. Elaborate and costly arrangements had been made in many cases to build a large number of houses, and the builders now find that those expenses have been thrown away by this novel and unfair method of procedure.

Most contracts have what is called an "up and down clause," so that the employers get the advantage of a drop in prices.

Costs, therefore, cannot be the ground of cancellation.

The fact seems to be that the Government started a far too extensive scheme and now seek to curtail it by the means we have pointed out.

It is time that builders and architects stood on their strict rights.

Mr. Henry E. Higgins, Lic.R.I.B.A., of Glasgow, died on Friday night at his residence, Rosengarten, Bearsden. Mr. Higgins, who was a native of Glasgow, carried out many important commissions in church, school, and domestic architecture. He is survived by his wife and a son and daughter. His son has been associated with him for twenty years in the business carried on at 248 West George Street, Glasgow.

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Modern Methods in Building Construction.—XXI.*

By Albert Lakeman, M.S.A., M.C.I.

FOUNDATIONS ON SOFT SOILS—(*continued*).

Foundation Piles—(continued).

When dealing with the question of foundation pile work it is very important to consider the most efficient method of driving the piles into position, and the type of equipment selected will be a prime factor in the success or failure of the operations. Different types of piles will require different methods, and in some schemes the ordinary ram or hammer system has been abandoned in favour of sinking the pile by jetting, but the latter method is extremely limited at the present time, and while it is a useful auxiliary to driving, it does not generally supersede it. An interesting example of jetting piles in America, described in "Successful Methods," is shown in figs. 125 and 126. The piles, illustrated in fig. 125, are made of concrete, with a 4-in. diameter pipe cast down through the centre of the length, this pipe being reduced to a 2-in. nozzle at the point of the pile. Side jets lead from this central pipe to the surface on all four faces at frequent intervals, with elbows attached which point toward the top of the pile. When ready for sinking, a 4-in. hose leading from a pressure-pump is attached to the head of the pile, and the water is turned on. In fig. 126 the sinking of this type at Omaha, Nebraska, is shown. The pile in this case is 50 feet long

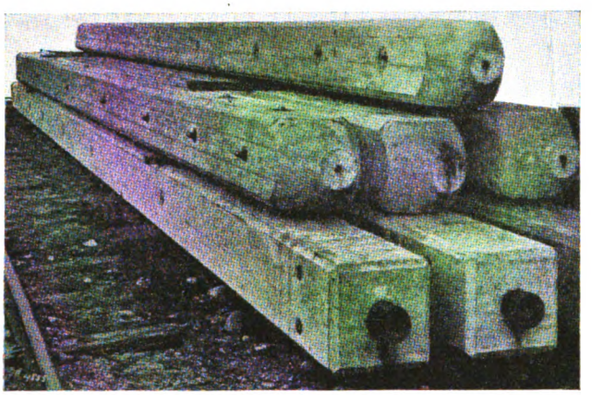


Fig. 125.—CONCRETE PILE WITH CENTRAL CASING AND NOZZLE.

and the weight 13,000 lb., and it was jetted 80 feet into the ground in eleven minutes with a water pressure of 225 lb., without the use of a hammer of any kind.

Many sizes and types of pile-drivers are made by Messrs. Whitakers (Engineers), Ltd., of Horsforth, and these vary from small hand pile-driving plants to large steam plants with heavy hammers or large cantilever machines for harbour and pier work. A typical plant is the 3-ton steam pile-driver made by this firm, and this has leaders 72 feet 6 inches high, with a wheel base of 14 feet and a gauge of 14 feet. The hammer is single acting, with a weight of 3 tons and a stroke of 4 feet

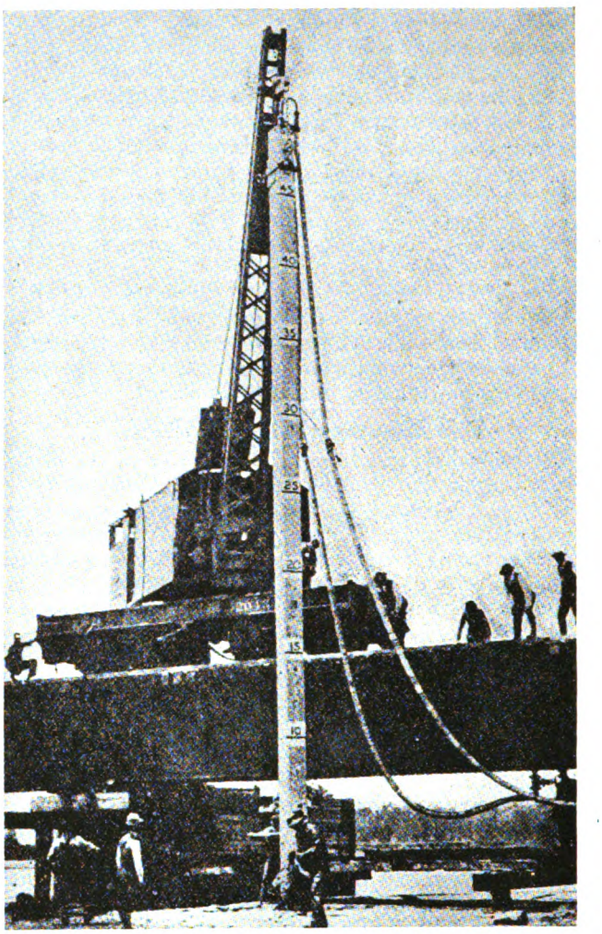


Fig. 126.—GETTING CONCRETE PILES INTO GROUND.

6 inches, while the distance from centre of rail to centre of hammer is 2 feet ⅛ inch. The hoisting drum is 12 inches in diameter and 2 feet 9 inches wide, and the hammer drum is 12 inches in diameter and 1 foot 11 inches wide, while the cylinders are 8 inches in diameter with 8-in. stroke, and the working pressure 100 lb. The base frame is rectangular and built up with steel channels strongly braced and riveted up as far as possible with bolted joints, where necessary, to facilitate transport and erection. The wheels are mounted on swivel bearings which have square threaded screw-jacks, giving a vertical adjustment of 3 inches, thus enabling the leaders to be plumbed exactly vertical or to be inclined to a slight batter. The swivels permit of the machine running in any direction. The mast is built up with angles, and a separate back guy constructed of braced channels is bolted to the base frame and the mast. A mild-steel ladder is fixed by brackets to the leaders at the side to give access to the rope-sheaves at the head of the mast. The hammer is of the single-acting type, the steam raising the hammer only. The cylinder, striking face, and cover are cast separately, ensuring sound castings in each case, while all other parts are carefully designed to give the maximum efficiency with the minimum maintenance. It is not necessary to describe the whole of the plant as regards snatchblocks, hose, boilers, and engines here, as the contractor will not need to go into all the technical engineering details provided the general specification is satisfactory and the equipment is being obtained from a firm of repute.

Complete piling plant is also supplied by the Ransome Machinery Co. (1920), Ltd., of Grosvenor Gardens, London, either as a complete unit or in separate parts for use with existing frames, &c. The Ransome-Whitaker

*PART I.—I. Introduction, Steam shovels, Jan. 13; II. Steam shovels, Trench diggers, Jan. 20; III. Grab buckets, scrapers, Jan. 27; IV. Drag-line excavators, Feb. 3; V. Derricks and cranes, radial loader, paving-breakers, Feb. 17; VI. Surplus Soil Transport (Hand Labour), Feb. 24; VII. Surplus Soil Transport (Horse-drawn wagons, Steam-driven wagons), Mar. 3; VIII. Surplus Soil Transport (Steam-driven wagons), Mar. 10; IX. Surplus Soil Transport (Steam-driven wagons, Petrol wagons, Narrow-gauge track with wagons), Mar. 17; X. Surplus Soil Transport (Narrow-gauge track with wagons, Trucks on Standard-gauge track, Electrically-driven trucks and vehicles), Mar. 24.

PART II.—XI. Foundation Work (Ordinary soils, Soft soils), April 7; XII. Foundation Work (Soft soils), April 17; XIII. Foundation Work (Soft soils), April 21; XIV. Foundation Work (Soft soils), April 28; XV. Foundation Work (Soft soils), sheet piling, May 5; XVI. Foundation Work (Soft soils), steel-sheet piling, May 12; XVII. Foundation Work (soft soils), steel-sheet piling, pumping, May 19; XVIII. Foundation Work (soft soils), pumping, May 26; XIX. Foundation Work (soft soils), foundation piles, June 2; XX. Foundation Work (soft soils), foundation piles, June 9.

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improved steam-friction piling winch is a special feature supplied by this firm, this being made in one standard size capable of handling safely a dead load of 5 tons on the single rope direct from the barrel. The advantages claimed for this winch include the following: (*a*) extreme rapidity of action up to fifty-five blows per minute; (*b*) all levers grouped together and arranged so that the operator actually faces his work; (*c*) simplest possible construction; all parts accessible; clutch-lining easily renewable; (*d*) powerful enough to handle the heaviest piling, yet adaptable to the lightest; (*e*) adequate protection to all brakes and gears; (*f*) all gears machine-cut; pinion on mild steel; (*g*) reversing gear provided of simple design, and (*h*) barrel of extra-large capacity. Ransomes make steel and timber pile-frames in a range of sizes from 15 feet in height for hand-driving up to 60 feet or 70 feet for use with drop monkeys and steam



Fig. 127.—RANSOME'S PATENT PILE HELMET.

winches for the heaviest service. One, the standard type, is the Ransome-Whitaker adjustable steel pile frame, which has been specially designed to meet the requirements of a wide range of work, and although built of steel it is lighter than a timber frame capable of handling the same loads. It can be quickly dismantled for removal from one part of the works to another, and be re-erected with speed and facility, while the leaders are adjustable, and it is capable of driving raking piles. When driving reinforced-concrete piles it is necessary to provide some protection for the head of the pile, and the Ransome patent pile helmet illustrated in fig. 127 has been designed to overcome the necessity of using the old-fashioned method of timber dolly and packing. It is claimed that this helmet handles, slings, pitches and protects the piles and facilitates the driving, as 95 per cent. of the full force of the blow is imposed upon the pile, whereas in the old method a considerable amount of the force is absorbed by the long dolly and packing. The result thus obtained is the nearest approach to direct driving that is possible with concrete piles, and quicker and deeper penetration and a more reliable "set" is obtained. At the same time, the pile head is fully protected, even under conditions of hard driving. The helmet is made of specially toughened cast steel in stock sizes for 12-, 14-, and 16-in. square piles and 14-in. octagonal piles. The maximum space occupied from the head of the pile to the top of the helmet is only 15½ inches, and this economy of head-room on the pile-frame leaders is often a matter of the greatest importance. An illustration of the use of the helmet in handling and pitching is given in fig. 128, the pile in this instance being 14 inches square with a length of 35 feet and a weight of 3½ tons. Other features made by the Ransome Co. include automatic high-speed hammers and "Rapid" pile extractors. The hammers are made in three standard types, Nos. 1, 2, and 3, having total weights of 3,360, 5,350, and 7,790 lb. respectively, and the strokes per minute are 300 for No. 1, 230 for No. 2, and 200 for No. 3. The steam or air pressure per square inch required to operate any of these hammers is from 80 to

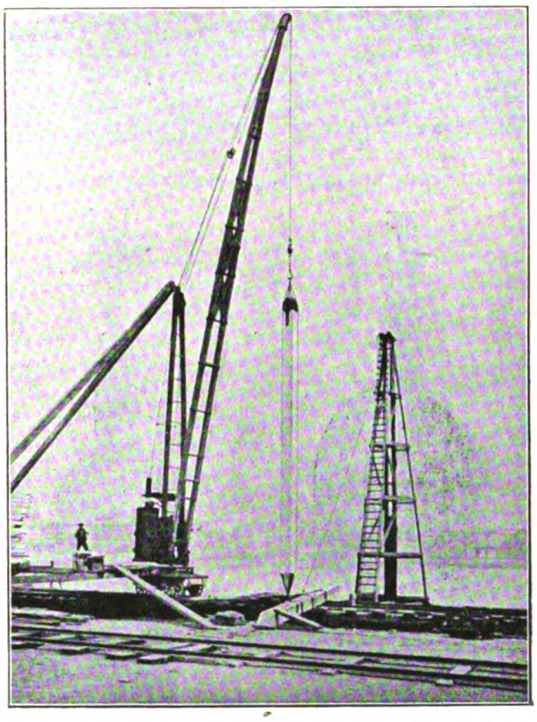


Fig. 128.—CONCRETE PILE BEING SLUNG WITH RANSOME HELMET.

100 lb. The smallest type is suitable for light steel sheet piling and for timber sheeting, and the No. 2 size is recommended for timber piles and for steel sheet piling generally, while the largest type is suitable for driving whole timber or concrete piles 12 to 14 inches square and for the heaviest sections and lengths of steel sheet piles. The makers recommend the use of a drop monkey and steam friction winch for rectangular section piles of over 14 inches square in long lengths when considerable weight has to be dealt with. The automatic hammer consists essentially of five main parts, viz., the cylinder, the piston or hammer, automatic valve, valve chest, and striking pallet.

In operation it is suspended from a crane or pile frame by means of the eye bolt which is provided in the cylinder head. The full weight of the hammer is allowed to rest upon the pile to be driven, the lifting rope or crane bond being kept just taut enough to act as a guide. When using the guides or leaders of a pile frame the hammer rope is left quite slack. One of the advantages of the automatic hammer is that it can be used without any pile frame, being suspended instead from a crane, which may command a group of piles without the necessity of travelling. By this method any loss of time through shifting the leaders for each pile is avoided. The steam

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or compressed air is supplied to the hammer by means of a flexible pipe, and to control it all that is necessary is an ordinary stop valve in a convenient position for starting and stopping. The " Rapid " pile extractors are also made in three sizes, and they are capable of extracting any class of pile—steel, timber, or reinforced concrete. The extractor can be suspended from an ordinary pile frame which has been used for driving, or from the jib of a suitable crane, and it is claimed that, with the use of a 2-ton winch only these extractors have successfully withdrawn whole timber piles up to 60 feet in length with an average penetration of 30 to 40 feet. The attachment of the extractor to the head of a pile is shown in fig. 129, and by the use of toothed wedges the grip is automatically increased as the load increases. The standard sizes are designed for use with steam or compressed air at 80 lb. pressure per sq. inch, and special grip boxes and grips can be supplied to suit any section of piling.

The use of these pile extractors will result in considerable economy in expense and time, as the actual extraction of a steel sheet pile may be accomplished in as short a time as half-a-minute when the conditions are favourable, and even under difficult circumstances a very quick extraction is made, and they will therefore form an essential part of modern piling plant.

Complete standardised pile-driving plants are supplied by The British Steel Piling Company, of Billiter Street, London, these being suitable for operating McKiernan-Terry automatic, single-acting long stroke, or

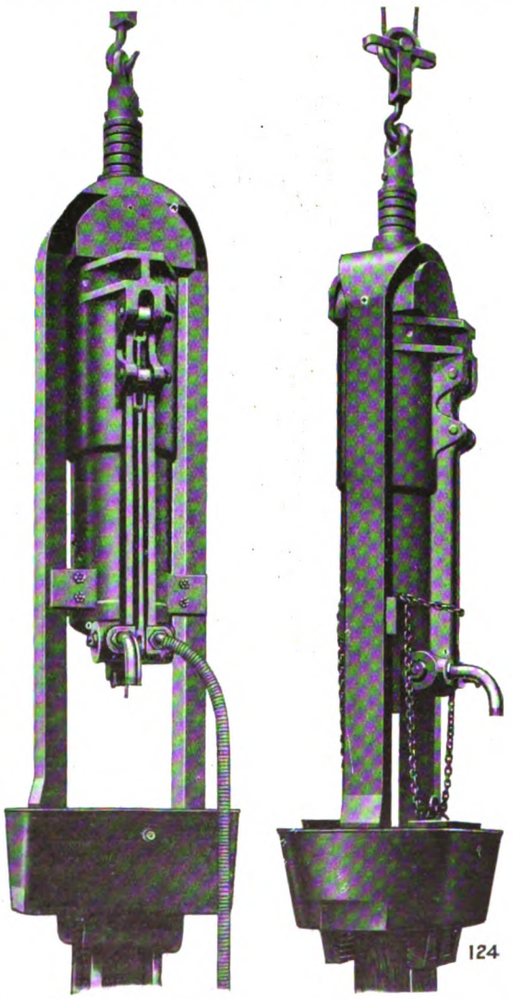


Fig. 129.—RANSOME STEEL AND TIMBER PILE EXTRACTOR.

drop hammers. These outfits consist of frame of timber, hammer of required size, " Zenith " double-barrel tandem friction winch, and Spencer-Hopwood water-tube or vertical cross-tube boiler. They include wire ropes, guy ropes, travelling rope for hauling plant, steam pipe, flexible tube, all tools and fittings, and a large number



Fig. 130.—BRITISH STEEL PILING COMPANY'S STANDARD PILING PLANT.

of spare parts. An illustration of one of these standard plants is given in fig. 130, this being fitted with a single semi-automatic direct-acting hammer, and is here shown in operation at the Kent Portland Cement Works, Stone. There are eighteen different standards available, these being of various sizes and capacities to suit almost any class of work. Several claims are made for the McKiernan-Terry Pile Hammer, the sole rights of which for all countries outside Canada and the United States are held by the British Steel Piling Company, among which is that this type was the first efficient double-acting pile hammer to be placed on the market. The range of hammers available is a wide one, the variation being from the No. 1 hammer, weighing 145 lb., to the 11B hammer, weighing 13,185 lb. The advantages of these double-acting hammers are stated as follows:—

(1) By the rapid succession of powerful blows the pile is kept in constant motion, the surrounding soil is kept loose, and the pile is driven home quicker than by any other type of hammer.

(2) There are only two moving parts, and these are entirely enclosed.

(3) They can be driven by steam or compressed air, and in changing over from one power to the other no adjustment of the valve or any other part is necessary.

(4) The blow of the hammer is delivered directly on an anvil block which rests upon the head of the pile, thus evenly distributing its force and preventing damage to the pile itself.

The action is similar to that of the pneumatic chipper, wherein the head of the chisel is never burred over or damaged, because the blow is always struck in the same place.

(5) In the smaller sizes the hammer may be used suspended by tackle without the use of a driving frame.

(6) Owing to the small head-room required, these hammers may be used in cramped situations where no other hammer could be employed.

(7) When inverted, this type of hammer can be used for withdrawing piles as readily and effectively as driving without any change being made to the steam ports.

The method of attachment when withdrawing steel sheet piling is shown in fig. 131, where the special grip

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which is fitted can be seen. In one case the No. 6 size McKiernan-Terry hammer was used for extracting the piles in a series of round coffer-dams, a good number of which piles were 73 feet long and driven to 34 feet penetration, while the upper lengths had been afterwards banked in with earth, &c., on both sides during construction of a pier, for specific purposes connected with the



Fig. 131.—WITHDRAWING PILES WITH McKIERNAN-TERRY HAMMER.

construction work. Before this hammer was used the contractors had tried many methods, and in fact had tried every way they knew without success. This inverted hammer was then given a trial, and it did the work so well that another similar hammer was ordered and the work successfully completed.

Before closing the notes on pile driving mention may be made of an interesting example of wood piling now in execution in Weehawken, N.J., U.S.A., where one of the piers of the Erie Railroad was burned down last year. This pier, which is now being rebuilt, is on the Hudson River, and has a width of 100 feet and a length of 832 feet. The old piles, of which there are about 3,500, will be cut off and used with the new piles, and these will be capped with 12-in. by 12-in. timbers, on which will be laid a solid timber decking 6 inches thick. The decking will be covered by 5 feet of earth filling to afford protection in case of any future fire in the superstructure. Two types of pile drivers, each of which has unusual features, are being used. One has 65-foot and the other 60-foot leads, and both handle piles up to 85 feet in length. The illustration in fig. 132, taken from "Successful Methods," shows one of these pile-drivers in use, and the follower block, which is a cup-shaped steel casting fitting over the head of the pile and also into the guides of the leads, can be seen. This follower block is a time-saving device, and it is used to protect the heads of the piles and at the same time keeps them from springing out of the leads. The hammer weighs 3,600 lb. and the follower block 1,200 lb., and each driver is equipped with a 40-h.p. hoisting engine. The driver illustrated is enabled by means of a turn-table to swing a full 360 degrees and also to travel backward and forward on steel dolleys. This machine has a working diameter of 54 feet, and thus covers half the width of the pier. The other driver used is of steel construction, with leads pivoted in such a manner that they can be tipped to an angle of 45 degrees to drive the spur piles, and it has

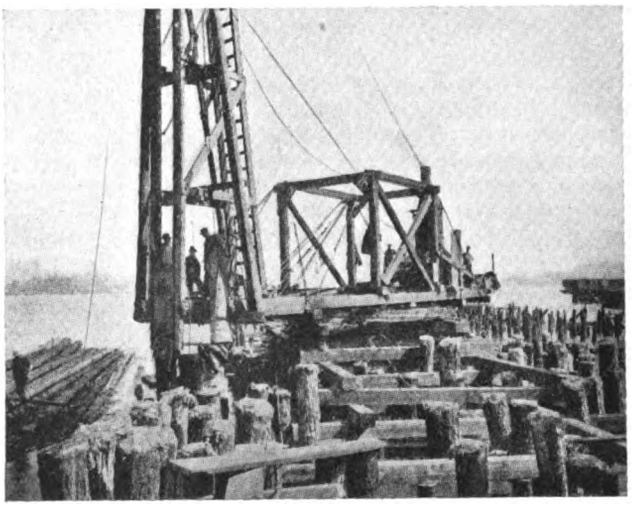


Fig. 132.—DRIVING WOODEN PILES IN AMERICA.

driven as many as 100 piles in an eight-hour day. The work was commenced at the end of February last, and since that time the average speed of 115 piles with both drivers has been maintained, the two crews numbering sixteen men in all. It is interesting to note that the superintendent for the contractors, who has had extensive experience in piling, states that the drop hammer as used by him is capable of doing faster work than a steam hammer, and, in fact, unless quicksand is encountered, he prefers in all cases the drop hammer to the steam hammer for pile driving.

(To be continued.)

Forthcoming Events.

Friday, June 16.—Town Planning Institute. Annual General Meeting at the Institution of Mechanical Engineers, Storey's Gate, S.W. Paper by Mr. J. J. C. Bradfield, M.E., M.Inst.C.E., entitled "Sydney—Past, Present, and Future." 5.30 p.m.

— Institution of Sanitary Engineers. General Meeting at the Holborn Restaurant, Kingsway, W.C. 11.30 a.m.

— Institute of Scottish Architects. Annual Convention at Inverness.

Saturday, June 17.—Royal Institute of British Architects. Visit to St. George's Chapel, Windsor.

— Northern Architectural Association. Club Annual Excursion. Visit to Fountains Abbey and Hall and Markinfield Hall.

Tuesday, June 20.—Society for the Promotion of Roman Studies. Annual General Meeting in the apartments of the Society of Antiquaries, Burlington House, Piccadilly, W. 4.30 p.m.

Wednesday, June 21.—Royal Institute of British Architects. Popular lecture at 9 Conduit Street, W., by Mr. W. H. Bidlake, M.A. (Cantab.), entitled "The Continuity of English Architecture." 5 p.m.

— Institution of Municipal and County Engineers. Annual General Meeting and Conference, including a Town Planning Exhibition and Trials of Municipal Appliances at Cardiff (four days).

Thursday, June 22.—Concrete Institute. Ordinary General Meeting at Dehison House, 296 Vauxhall Bridge Road, S.W. Routine business only. 6.30 p.m.

Friday, June 23.—Manchester Housing and Health Exhibition at City Hall, Manchester (June 23-July 5).

Mr. E. Ridsdale Tate, Lic.R.I.B.A., died on Monday last at his house in York, after a short illness, at the age of sixty-one. The deceased was from his student days an enthusiastic archæologist.

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What is Architectural Design?

In introducing Mr. D. S. MacColl to the audience at last week's popular lecture at the R.I.B.A., the Chairman, Mr. H. M. Fletcher, alluded to the fact that there was the common ground of general principles on which both professional architect and layman could meet for discussion. The lecturer certainly did deal with principles, but more particularly did he deal with Mr. Geoffrey Scott's "The Architecture of Humanism," as being a review of the general stock of ideas and an attempt to define and rationalise what is secondary and what is primary in architectural design. Mr. MacColl gave a very close analysis of many of the ideas of that book in order to lay bare any weak joints. In accepting as his text Sir Henry Wotton's "Well-building hath three conditions: Commodity, firmness, and delight," Mr. Scott had contended that while architecture was a focus where three separate purposes have converged, yet they were distinguished from each other by a deep and permanent disparity. With this Mr. MacColl would not agree. Under the one word efficiency he grouped the first two—commodity and firmness; and he further maintained that the thing efficiently done or made was rhythmically done or made, and rhythmic relations were what excite the sense of beauty. A sailing ship (one of the most beautiful structures made by man) or a suit of armour are instances of this wedding of the three conditions. Construction for commodity or for the purposes of a building was not necessarily a separate and alien thing from construction for the pleasure of the eye. There was no hard-and-fast rule to be laid down. It is clear that declared construction took the lead with Gothic designers and with what is called engineering to-day; it was equally clear that the Renaissance designer exercised a greater independence. Those wishful of condemning Renaissance practice often viciously describe it as the "dressing-up" of construction. When this accusation is looked at in the face it proves to be not so bad as it sounds. The architect may claim a considerable measure of freedom in what he chooses to emphasise or to conceal. When Sir Christopher Wren binds his dome round with a chain he is like the dressmaker who supports a slack figure with a corset. If he had been free, with his constructive genius, to work on at his problem, it is conceivable that its pressure would have led him on to forms no less or even more beautiful.

Mr. Scott, said the lecturer, having dismissed to his satisfaction what he calls the mechanic and utilitarian fallacies, went on to deal very brilliantly with other considerations, which he calls the romantic, ethical, academical, and biological fallacies. But not a little of argument was rather in the nature of thimblerigging. For example, having ruled out functional beauty under the mechanic fallacy, Mr. Scott restored it as an echo of human functions.

Discussing his subject in more general terms, Mr. MacColl said that architecture, like armour, was a shell for the human body, only a much bigger one, not to be carried about, made to enclose more bodies than one, and to allow them to move about freely inside it. But it was a shell in the sense that it acted as a protection against enemies—robbers possibly, in any case against extremes of heat and cold and of wet. Whilst, therefore, it may be natural for the architect to think most of his building as it affects the eye from outside, his client, whether or not he is sensitive to such things, is concerned first of all in securing the shell for his indoor activities, and therefore looks at the building from the inside rather than the outside. The proportions must be human proportions in the sense that space is allowed for reasonable circulation, sitting or lying down. The windows are a feature where one can follow more closely the kind of wrestle that goes on between design for commodity and design for beauty. A window may fulfil various uses. First of all, that of lighting the room, second, that of ventilating it, third, that of providing a view. Extreme compliance with the first claim cries "Fill the whole space with plate glass." But the architect retorts "No, you are breaking up my wall too absolutely with those bald holes in it, and depriving me of a useful smaller unit from which I can start my game of parcelling out and enjoying space. If I have panes, then I can give the eye a smaller unit with which to measure my window spaces and the spaces between them."

The way in which humanity imposes itself upon and moulds architecture is by the constant reference of spaces, their shapes and sizes to the human body, and its ways of using them. Without this reference architecture would be an inhuman design. Mr. Scott dealt with spaces as objects of visible pleasure, but left out of this visible pleasure the seeing that they fit, the keen satisfaction there is in their accommodation to human needs, the pleasures of planning and contriving. Humanism for Mr. Scott meant not this adaptation and division of space for human needs, but independence of them in the pursuit of visual design. And finding that independence most complete in baroque architecture, he was brought to his second special plea for a period that has met with small sympathy from architects and critics.

Mr. MacColl concluded his lecture by a digression into the mystery of "designing in three dimensions" as it applies to architecture.

Furness House.

Referring to our article in our issue of June 2, 1922, dealing with the above premises, we have been requested to publish the following further information.

The area of the land on which this building stands is not 28,419 super feet, as stated, but about 35,000 super feet.

The name "Furness House" only applies to that part of the building in the occupation of Messrs. Furness, Withy & Company, Limited, the remainder of the premises being designated by the respective numbers in the street.

The internal decoration of the Board Room and Directors' rooms on the gallery floor belonging to Messrs. Furness, Withy & Company, Limited, as also sundry other rooms in their use, together with all furnishing, including counters, desks, electric lighting, &c., both for this firm and their allied companies have been carried out under the direction of their architect, Mr. L. S. Sullivan, of 125 Fenchurch Street, E.C. 3.

The internal decoration and development of Messrs. Instone's premises on the ground floor was confided to their architect, Mr. George E. Withers, of 50 Cannon Street, E.C. 4.

The general contractors for the building and for Messrs Furness, Withy & Company's decorative work were Messrs. Trollope & Colls, Limited, of 5 Coleman Street, E.C. 2. This firm and the Bath Artcraft, Limited, executed between them the above referred to furnishing.

The decorative plastering to ceilings was carried out partly by Messrs. George Jackson & Sons, of 49 Rathbone Place, W., and partly by Mr. Paul Turpin, of 17 Berners Street, W.

We would mention that any attempt to describe the multitudinous details forming the finish and decoration of this great building was quite beyond the scope of our article, which only dealt with a few original departures adopted by Mr. M. E. Collins, and which we deemed of educational value.

A conference arranged by H.M. Office of Works to consider objections which had been taken to the proposed War Memorial to the employees of the North-Eastern Railway Company was held at York last week, under the presidency of Mr. C. R. Peers, the chief inspector of ancient monuments. Sir Edwin Lutyens, R.A., designed the memorial, and selected as a site a portion of the mound of the city wall, which would have to be cut to accommodate one of the wings of the memorial, on the panel of which the names of the men are to be inscribed. After discussion, it was understood that Sir Edwin Lutyens would send another scheme, and Mr. Peers said he would put the amended design before the Office of Works, pointing out the objections he had heard.

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Royal Institute of British Architects.

The following is the result of the R.I.B.A. annual elections, 1922-23, announced on Monday last:—

President.—Mr. Paul Waterhouse.

Vice-Presidents.—Mr. H. D. Searles-Wood (760); Mr. A. W. S. Cross (751); Mr. George Hubbard (704); Mr. C. H. Heathcote (648).

Honorary Secretary.—Mr. Arthur Keen.

Past Presidents.—Sir Reginald Blomfield and Mr. John W. Simpson.

Members of Council.—Fellows.—Mr. C. B. Flockton (861); Mr. Sydney Perks (834); Mr. W. Gillbee Scott (773); Mr. W. E. Riley (764); Mr. C. Lovett Gill (744); Mr. G. Topham Forrest (727); Mr. Max Clarke (722); Mr. W. W. Scott-Moncrieff (691); Mr. J. A. Swan (687); Mr. W. G. Hunt (651); Major Harry Barnes, M.P. (648); Mr. Herbert Shepherd (634); Mr. J. Alfred Gotch (633); Mr. Delissa Joseph (633); Mr. A. O. Collard (625); Mr. Heaton Comyn (622); Sir Edwin L. Lutyens (620); Mr. Percival M. Fraser (589).

Associate Members of Council.—Mr. W. H. Ashford (712); Mr. Digby L. Solomon (684); Mr. Frank Woodward (665); Mr. Arthur Welford (622); Mr. H. G. Fisher (618); Mr. L. A. Culliford (588).

Representatives of Allied Societies.—Mr. Edward T. Boardman (Norfolk and Norwich); Mr. Francis Jones (Manchester); Mr. James Lochhead (Glasgow); Mr. Thomas R. Milburn (Newcastle); Mr. Eric Morley (Leeds); Mr. Percy Morris (Devon and Exeter); Mr. Rupert Savage (Birmingham); Mr. Percy Thomas (Cardiff); Mr. Edward P. Warren (Berks, Bucks and Oxon).

Representative of the Architectural Association.—Mr. Stanley H. Hamp.

Honorary Auditors.—Mr. John Hudson and Mr. Arthur W. Sheppard.

ART STANDING COMMITTEE.

Fellows.—Mr. H V. Lanchester (839); Sir Edwin L. Lutyens (833); Mr. Halsey Ricardo (721); Professor C. H. Reilly (693); Professor S. D. Adshead (675); Mr. Walter Cave (671); Professor F. M. Simpson (660); Mr Ralph Knott (650); Professor A. E. Richardson (650); Mr. William Walcot (605).

Associates.—Mr. Cyril A. Farey (928); Mr. T. S. Tait (895); Mr. L. H. Bucknell (877); Mr. Michael Waterhouse (823); Mr. Percy W. Lovell (800); Mr. Arthur Welford (800).

LITERATURE STANDING COMMITTEE.

Fellows.—Mr. Martin S. Briggs (773); Major Hubert C. Corlette (771); Mr. H. M. Fletcher (763); Mr. H. H. Statham (755); Mr. C. Harrison Townsend (755); Mr. Arthur Stratton (754); Mr. B. T. Fyfe (715); Mr. E. Stanley Hall (710); Mr. Louis Ambler (698); Mr. Charles S. Spooner (680).

Associates.—Mr. J. Hubert Worthington (777); Mr. J. Alan Slater (767); Mr. H. Chalton Bradshaw (680); Mr. George Drysdale (611); Mr C. Cowles-Voysey (584); Mr. W. H. Ansell (574).

PRACTICE STANDING COMMITTEE.

Fellows.—Mr. Sydney Perks (750); Mr. Arthur Keen (737); Mr. Max Clarke (707); Mr. John Slater (669); Mr. W. Gillbee Scott (663); Mr. G. Topham Forrest (613); Mr. Delissa Joseph (582); Mr. Wm. G. Hunt (581); Mr. Henry V. Ashley (556); Mr. A. O. Collard (531).

Associates.—Mr. Horace Cubitt (828); Mr. G. Scott Cockrill (753); Mr. J. Douglas Scott (712); Mr. Digby L. Solomon (708); Mr. H. V. Milnes Emerson (686); Mr. Herbert A. Welch (662).

SCIENCE STANDING COMMITTEE.

Fellows.—Mr. W. A. Pite (935); Mr. H. D. Searles-Wood (879); Mr. Alan E. Munby (872); Mr. H. Percy Adams (861); Professor R. Elsey Smith (751); Mr. Raymond Unwin (687); Mr. W. E. Vernon Crompton (686); Mr. Francis Hooper (669); Mr. Herbert Shepherd (616); Mr. C. A. Daubney (607).

Associates.—Mr. Robert J. Angel, Mr. Henry W. Burrows, Mr. John H. Markham, Mr. Harvey R. Sayer, Mr. Theodore F. H. White, Mr. Charles Woodward.

NOTE.—The numerals refer to the number of votes given.

Mr. F. A. Roberts, architect, Mold, has prepared plans for further hospital accommodation required by the St. Asaph Board of Guardians.

Correspondence.

Employment Register for Architects' and Surveyors' Assistants.

To the Editor of THE ARCHITECT.

SIR,—Will you please afford me space in your valuable journal to make known to architects and surveyors practising in the Midland Counties that a register of assistants requiring employment is kept by the Birmingham Branch of the A.S.A.P.U.?

This register, although primarily intended for the convenience of members, also contains names and particulars of several assistants who have not applied for membership of the union, and, of course, every endeavour is being made to find employment for these men.

It will be a great help to the local unemployed assistants if architects and surveyors having vacancies upon their staffs will communicate with the undersigned (giving full particulars of the type of assistant required and the salary to be paid). Names and addresses of suitable men will then be forwarded by return of post.

The Birmingham Branch of the A.S.A.P.U. is incurring considerable expense in trying to help those assistants in their area who are unfortunately disengaged, and it is hoped that support will be forthcoming from the architectural and surveying practitioners of the district.—Yours, &c.,

C. BERTRAM PARKES,
Hon. Secretary, Birmingham Branch A.S.A.P.U.

62 Thornhill Road, Handsworth, Birmingham.

Bribery.

To the Editor of THE ARCHITECT.

SIR,—It is possible for an association to do a great deal of useful work without expecting enthusiasm about its efforts, but if the writer of your note were familiar with the work of the Bribery and Secret Commissions Prevention League, Incorporated, he would be able to strike a more cheerful chord.

On another page of your issue you report a lecture on "The Value of Public Opinion." It is by educating public opinion—a slow process—that the League believes it will reach its goal before the Ides of March.—Yours, &c.,

THE SECRETARY.

Bribery and Secret Commissions Prevention League, Inc.
9 Queen Street Place,
London, E.C. 4,
June 10, 1922.

"The Value of Public Opinion."

SIR,—I should like the opportunity of supplementing the few remarks which I made contributory to the discussion upon Mr. Halsey Ricardo's interesting paper at the R.I.B.A. upon "The Value of Public Opinion."

Expressing my view, as I ventured to express it, that there is no value in such opinion, I had no intention of speaking for effect; far otherwise. Public opinion can only be effective for matters of public polity, such as the attitude of men towards each other sociologically, communally, imperially. But in matters of taste, of artistic effect, of artistic propriety, it is not possible to dogmatise, nor is it possible to obtain a body of opinion sufficiently weighty to ensure that its satisfaction will meet with (or deserve to meet with) general approval. Why! as regards architecture we cannot even get architects to agree with each other as to what satisfies the canons of good taste.

Mr. Ricardo referred to "the effect of public opinion." The value of the public view is just that of the credit attaching to those who take up the craze of the moment, because it *is* the craze; who wear short skirts, long skirts, no skirts, sunflowers, because their neighbours are so doing.

And moreover, we are better without a community of taste; in variety we live and flourish, not in deadly monotony.—Yours, &c.,

PERCY L. MARKS.

10 Matheson Road, West Kensington, W. 14.
June 12, 1922.

Sir Charles T. Ruthen, F.R.I.B.A., Director-General of Housing, has entirely severed his association with the Society of Architects as from May 17.

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Studies of the English Sculptors from Pierce to Chantrey.*

XIII. Louis Francois Roubiliac (1695-1762)—(*continued*).

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(*As before, * = not given in de Ste. Croix and other Biographers.*)



BUST OF SIR HANS SLOANE, IN BRITISH MUSEUM.
By Roubiliac.

By 1738 then we can name fourteen works of our sculptor—the *Dormer monument (before 1728), the *Gayhurst monument (undated, but probably little later), the Academy group of 1730, the Swift, the works seen by Vertue—i.e., the busts of *Farinelli, *Newton, *Cromwell, Pope, executed for Lord Bolingbroke in 1741 (the model for which afterwards belonged to Rogers,[1] while a second is in the British Museum, and a third was sold at Nollekens's sale in 1823, while the original belongs to Lord Rosebery); the Hogarth (? that in the National Portrait Gallery), the Ware, "one of his best performances," a *bust of Handel, either that at the Foundling or at Windsor, and the Handel, and probably the Milton, for Vauxhall, while Vertue's &c.'s cover other works not now discoverable, though that of Tyres may be one of them, cf. No. 16). We may add that the *model for the Vauxhall Handel[2] belonged to Hudson, the portrait painter, then to the elder Smith, who bought it for five pounds and let his master Nollekens have it, at whose sale Hamlet the silversmith bought it for ten guineas.

Now that Roubiliac had attained a recognised position and set up for himself, we may give a further list of his works, premising that on leaving Cheere he settled in rooms in St. Peter's Court, St. Martin's Lane, which he occupied till the St. Martin's Lane Academy moved into them, when he took No. 66 St. Martin's Street, which had the double advantage of a separate approach by a passage from No. 63, and of being close to his favourite resort, the Old Slaughter's Coffee House; the premises were later occupied by his old pupil Read. Here also we may note that several of the works ascribed to Roubiliac by his biographers are not his at all: the Locke at Christchurch and George I. at Cambridge are by Rysbrack; the "proud" Duke of Somerset at Trinity[3] is, as a note in the College archives show, by Gibbons; and the oft-repeated story that Frederick Prince of Wales gave Roubiliac's busts of Spenser, Shakespeare, Milton, and Dryden to Pope, who bequeathed them to Lord Lyttleton, is true if we substitute the name of Scheemaker for that of Roubiliac, as the catalogue of the Manchester Exhibition of 1857 shows.

15. Monument to Thomas and Margaret Chambers, All Saints, Derby, erected by their daughter, the Countess of Exeter, in 1737.

16. Portrait of Jonathan Tyers, sold at Christie's in 1830, probably an early work.

17. Monument to Jeanie Deans's Duke of Argyll (ob. 1743), Westminster Abbey. Sir Henry Fermor bequeathed £500 for this work, the figure of Eloquence, flanking that of History, being one of the sculptor's best. Bacon described it as "the finest specimen of sculpture," Canova as "one of the most beautiful statues" he had seen in England. The *model is in the Victoria and Albert Museum.

18. Monument to Bishop Hough (ob. 1744), Worcester, a work which Chantrey used to study whenever he visited that cathedral. The figure of Religion lifting a fringed cloth from the bas-relief showing the expulsion of Hough from Magdalen is exquisitely lovely.

19. Statue of Duncan Forbes, Parliament House, Edinburgh, a fine work, the erection of which, according to Cunningham, led to violent political outbursts at a time when Jacobite feeling was still running high in Scotland.

20. Statue of Religion holding the Cross and Book of Life in the centre of a "beautiful Ionic temple" in the grounds of Gopsall Hall, Leicestershire, erected in memory of Edward Holdsworth (ob. 1746), the commentator on Virgil; below is a cenotaph by Hayward. A full description, with a sketch, will be found in Hicnol's "Leicestershire," IV., p. 858, pl. cxxxix., fig. 12; cf. the same author's "Literary Anecdotes," III., pp. 68-9.

21. Bust of Sir Robert Walpole (ob. 1748), Houghton.

22. Monument to Marshal Wade (ob. 1748), Westminster Abbey, on which Vertue has an interesting note. The cumbrous allegory of the monument is less satisfactory to the modern reader than to the enthusiastic Vertue: "Aug (1752) in Westminster Abbey set up for General Wade—a noble monument the Work of Mr. Rubbiliac—being much commended for the excellence of its performance being esteemed as a Capital work of Modern Sculpture—the figures of Time and Fame being of Marble each about 5 foot high."

23. Monument to General Fleming (ob. 1750), Westminster Abbey.

24. *Mural monument to Elizabeth Smith (ob. 1750)

* For preceding articles in this series see:—Introductory Article, July 1; Nicholas Stone (1587-1647), July 8; Edward Pierce (ob. 1698), Sept. 2; Caius Gabriel Cibber (1630-1700), Sept. 16; Grinling Gibbons (1648-1721), Sept. 30; John Bushnell (d. 1701), Oct. 7; Francis Bird (1667-1731), Oct. 21; Peter Scheemaker (1690-1771?), Dec. 9; Peter Scheemaker (*cont.*), Feb. 10; John Michael Rysbrack (1693-1770), Mar. 3; John Michael Rysbrack (*cont.*), April 7; Louis Francois Roubiliac (1695-1762), April 21.

[1] Tom Moore tells us that he saw at Sir Robert Peel's the bust of Pope, of which Rogers had the cast (? the original model), "remarkable for the fine lines and markings with which it abounds, afterwards softened down or omitted in the marble." A copy by E. H. Bailey, R.A., is in the National Portrait Gallery.

[2] "The Model in Clay baked of Mr. Handel done by Mr. Roubillac—the same from which the Statue in Foxhall Gardens was done as big as the life—in Marble by Mr. Rubillac an excellent Statue—this Model near 2 foot high is in posses of Mr. Hudson painter."—*Vertue.*

[3] De Ste. Croix's blunder here is too amusing to omit. Having seen Walpole's description of the Duke's dress as a Vandyck habit, he confuses "habit" with "habitation" and says that the statue is to be seen at the Maison Vandyck, Cambridge." I regret that I omitted the Duke of Somerset from my previous list of Gibbons's works.

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with charming medallion portrait, St. Botolph Without Aldersgate.

25. Henry St. John, Viscount Bolingbroke (ob. 1751), large mural monument with medallion portraits of himself and his second wife, Battersea Old Church. The impressive inscription beginning, "In the days of Queen Anne Secretary of State, in those of King George I. and King George II. something more and better," is said to have been written by Bolingbroke himself.

26. *Monument to Thomas Winnington, Paymaster-General (ob. 1746), bust on sarcophagus, Stanford, Worcestershire.

27. *Monument to Roger Owen (ob. 1711), Condover Church, Shropshire.

28. *Monument to Thomas Vernon, a recumbent figure in Judge's robes between figures of Justice and Law (?), Hanbury, Worcestershire, a colossal work of great excellence.

29. Sir John Cass (ob. 1728), lead statue now in the Sir John Cass Institute, Aldgate, an admirable work dated 1751, at once dignified and realistic, for which the Trustees paid only £100. The sculptor's unique power of rendering texture was never more fully shown than in this statue, the furred gown, coat, shirt, and wig (the latter justly praised by J. T. Smith) being admirably done, although the sculptor greatly preferred his sitters without one. "Every button of his dress seems," as Cunningham said of the Handel, "to have sat for its likeness." In 1829 Smith complained that this splendid figure (then in a niche in the front of the school buildings) had "lately been most villainously painted of various colours, in order to make it appear as natural as life, or like the Westminster Abbey Waxworks." No trace of this vandalism is now visible. An excellent photograph, done before the work was placed in its present position in the porch, is in Sir Laurence Weaver's "English Leadwork," with a full account of the transactions with Roubiliac (pp. 153-4).

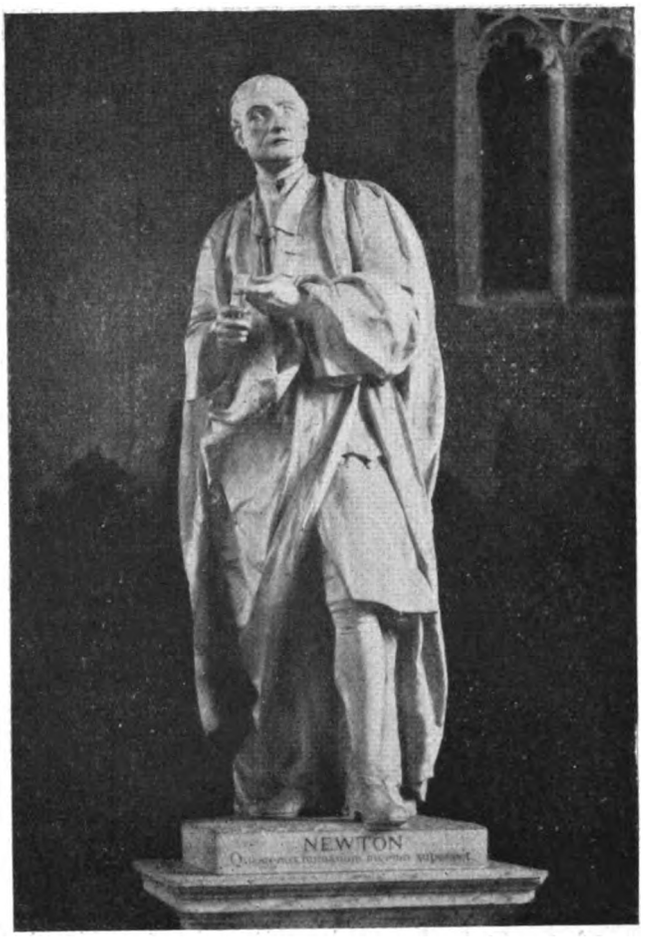
30, 31. Monuments to Ralph Duke of Montague (ob. 1749) and his Duchess (ob. 1751), Warkton, Northants. These magnificent works are among the triumphs of the sculptor. In the first Charity, holding a child and with another clinging to her skirts, suspends a medallion of the Duke against a sarcophagus surmounted by a ducal coronet, an exquisite child angel helping her, while on the step below the Duchess reclines, gazing up at the portrait of her lord. In a blue-grey marble niche on the other side of the chancel is her tomb, before which are the Three Fates, noble and serene figures of different ages. A weeping child angel, all but hidden by the modern pews, holds up Clotho's distaff, while two more wreath the urn that crowns the monument with flowers. No words can describe the beauty of the forms and faces, the exquisite rendering of hands and feet, or the tender grace of the various figures, in the face of which Cunningham's sneers are mere impertinence.[4]

32. Bust of Archbishop Chichele, in the Hall at All Souls', 1751.

33. Monument to Spencer Cowper, grandfather of the poet (1669-1727), Hartingfordbury. Thus described by Vertue in 1752: "A bass-relievo of Spencer Cooper a Judge to be erected for his monument in the Country seated in his judgment Seat—is justice and prudence standing on each side, has much Spirit grace and truth, the whole Monument Bas relievo, not above 7 foot high."

Before we follow Roubiliac to Rome in 1752, we may pause to note two small events in his life which may have some connection with one another. In March 1750 he was robbed in Dean Street, Soho; in June he was obliged to borrow twenty pounds from Tyers; this is the first hint of those money difficulties of which we shall hear more later on.

[4] De Sainte Croix, who never saw the originals, and whose knowledge of English was very imperfect, came across an engraving of Van Geldart's monument to a later Duchess in the same church, and described this as Roubiliac's!



STATUE OF SIR ISAAC NEWTON, TRINITY COLLEGE, CAMBRIDGE. By Roubiliac.

Eighteen months later, on January 6, 1752, Roubiliac was married to Miss Crosby of Deptford, "a celebrated beauty, with ten thousand pounds to her fortune," the announcement appearing in the "General Advertiser," the "Gentleman's Magazine," and Fielding's "Covent Garden Journal"; but nothing whatever else is known about his marriage or his wife, and the registers of the Deptford churches contain no allusion to the marriage. Later in the same year (not in 1747, as de Sainte Croix states) he left for Rome in company with Arthur Pond, the artist, collector, and *bon vivant*, Wilton the sculptor, and Hudson the portrait painter. On Mont Cenis the party met Reynolds on his way home from Italy, but no other incident of the journey appears to be recorded, though its consequences were far-reaching. "Roubiliac," says Flaxman, contemptuously, "was absent from home three months, going and returning, stayed three days in Rome, and laughed at the sublime remains of ancient sculpture." This is mere spite on the part of a fanatical devotee of classicism, since Roubiliac, on his return, told Reynolds that he was "in raptures with the works of antiquity." His real crime in Flaxman's eyes was that he was equally enraptured with "the captivating and luxuriant splendour of Bernini," but Flaxman might surely have set against this admiration Roubiliac's affection for the great Norris tomb in Westminster Abbey, of which we shall speak by and by. The truth is that, brought up as he had been in France and Germany among the imitators of Bernini, the master himself came as a revelation to the impressionable Roubiliac, although, be it remembered, he was fifty-seven when he went to Rome. His eyes were opened to the defects of his own works, and Reynolds, who shared his admiration for Bernini, reported that he said of them, "I was infinitely impatient when I had taken a survey of my own performances in Westminster Abbey, after having seen such variety of excellence, and by G—— my own work looked

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MONUMENT TO ADMIRAL SIR PETER WARREN, IN WESTMINSTER ABBEY. By Roubiliac.

to me meagre and starved, as if made of nothing but tobacco pipes." The only work Roubiliac is known to have brought back with him was "a figure of Pythagoras, carved in wood, larger than life, the work of John of Bologna"; no biographer of Roubiliac has noticed the fact, which is recorded by Smith in his "Antient Topography of London," p. 72.

After the visit to Italy comes an immense mass of work of certain date, and a still greater mass of uncertain. First we may name the most important work of the following year, one in which the fruits of the sculptor's study of Bernini begins to bear fruit. This is:—

34. The monument to Admiral Sir Peter Warren (ob. 1753), with its splendid Neptune placing the Admiral's pock-marked bust in position, balanced by the delightful seated figure of Navigation, a statue worthy of Bernini, and, to our thinking, much above the Eloquence of the Argyll monument of ten years earlier. The allegory is, however, somewhat clumsy, and it is essentially the parts and not the whole that are beautiful, a remark which applies to others of the sculptor's works.

35-44. We may take next the marvellous series of busts at Trinity College, Cambridge,[5] placed on Wren's bookcases in the Library. Their dates are various, a few being contemporary portraits, while most are based on engravings or other historical sources; but it is impossible, merely on the ground of variation of dates, to separate the group, the finest of their kind in England. They include *Lord Galway (ob. 1725), *Lord Trevor (ob. 1753), *Bacon, *Barrow (1756), *Bentley (1756) plaster casts of these two in the British Museum), *Sir Edward Coke (ob. 1757), *Sir Robert Cotton (ob. 1757), *Sir Isaac Newton (casts at the Royal Society's Rooms and the British Museum), *John Ray (ob. 1705), and *Francis Willughby (ob. 1672), the models for the two last being in the British Museum.

45. With these may be placed the glorious statue of Sir Isaac Newton in the Ante-Chapel of the same College, familiar to many who know nothing of Roubiliac from the famous passage in the Prelude inspired by Wordsworth's sight of the statue by moonlight from his rooms at St John's:

> Newton, with his prism and silent face,
> The marble index of a mind for ever
> Voyaging through strange seas of thought alone.

It is probably the noblest single figure in England, as the sculptor's, Duncan Forbes's, is the greatest work of the class in Scotland.

46-48. We may now complete the group of works at Oxford, of which we have already mentioned the Chichele of 1751. These include the *busts of *Dr. Frewen at the Radcliffe Library and Christ Church (1757), and the *Dr. Lee at the same College; the Locke also at Christ Church, often ascribed to him, is as already said, by Rysbrack.

49. Of a similar historical character to many of the Cambridge busts is the Sir Andrew Fountaine at Wilton.

50. Monument to General Hargrave (ob. 1757), Westminster Abbey. The angel blowing the last trumpet over a falling wall, and the General rising out of an over small sarcophagus, are in the worse taste of the time. It was on this monument that a ribald schoolboy scribbled the lines, "Ly still if you're wise, You'll be damned if you rise." ("Supplementary Letters of Horace Walpole," Toynbee, II., p. 113.)

51. Lord Leicester, plaster model at Holkham, afterwards executed in marble by Chantrey.

52. *Henry Fox, first Lord Holland, Holland House.

53. *Bust of Colley Cibber as an old man, coloured in imitation of life, and perhaps the most realistic portrait ever produced. Once in the possession of Mrs. Clive, the actress, and then at Strawberry Hill.

54. Monument to Lady Middleton (ob. 1756). There was a connection between this family and the Selwyns, which may have led to the employment of Roubiliac, whose Charles I. at Matson (No. 63) was much admired, on the lady's monument. I have been unable to trace this work, which is alluded to by Vertue.

55. Bust of Dr. Mead, Royal College of Physicians; the *model for this is in the British Museum. Of Roubiliac's quarrel with the College over this bust something will be said later; of its high excellence as a portrait there was never any question.

56. Bust of Dr. Sydenham. *Ibid.*

57. *Bust of Lord Chesterfield. *Model in the British Museum.

58. Bust of Martin Folkes. *Model in the British Museum, cast at the Royal Society's Rooms. A work much admired by Vertue.

59. Bust of Prior. Sold at the Stowe Sale of 1848 to Sir Robert Peel.

60. Statue of Shakespeare (1758), executed for a temple of David Garrick's villa at Hampton and bequeathed by his widow to the British Museum. One of the poorest and most theatrical of the sculptor's works, which yet took such a hold on the public imagination that R. B. Wheler, writing in the "Gentleman's Magazine" (1815, p. 4), complained that Roubiliac and Scheemaker between them had created an affection for "the Frenchified head of the Sweet Swan of Avon," which had spoiled the public taste. The *model is in the Victoria and Albert Museum.

61. *A much finer Shakespeare type, though still taking after the Chandos portrait, is the terra-cotta bust in the British Museum.

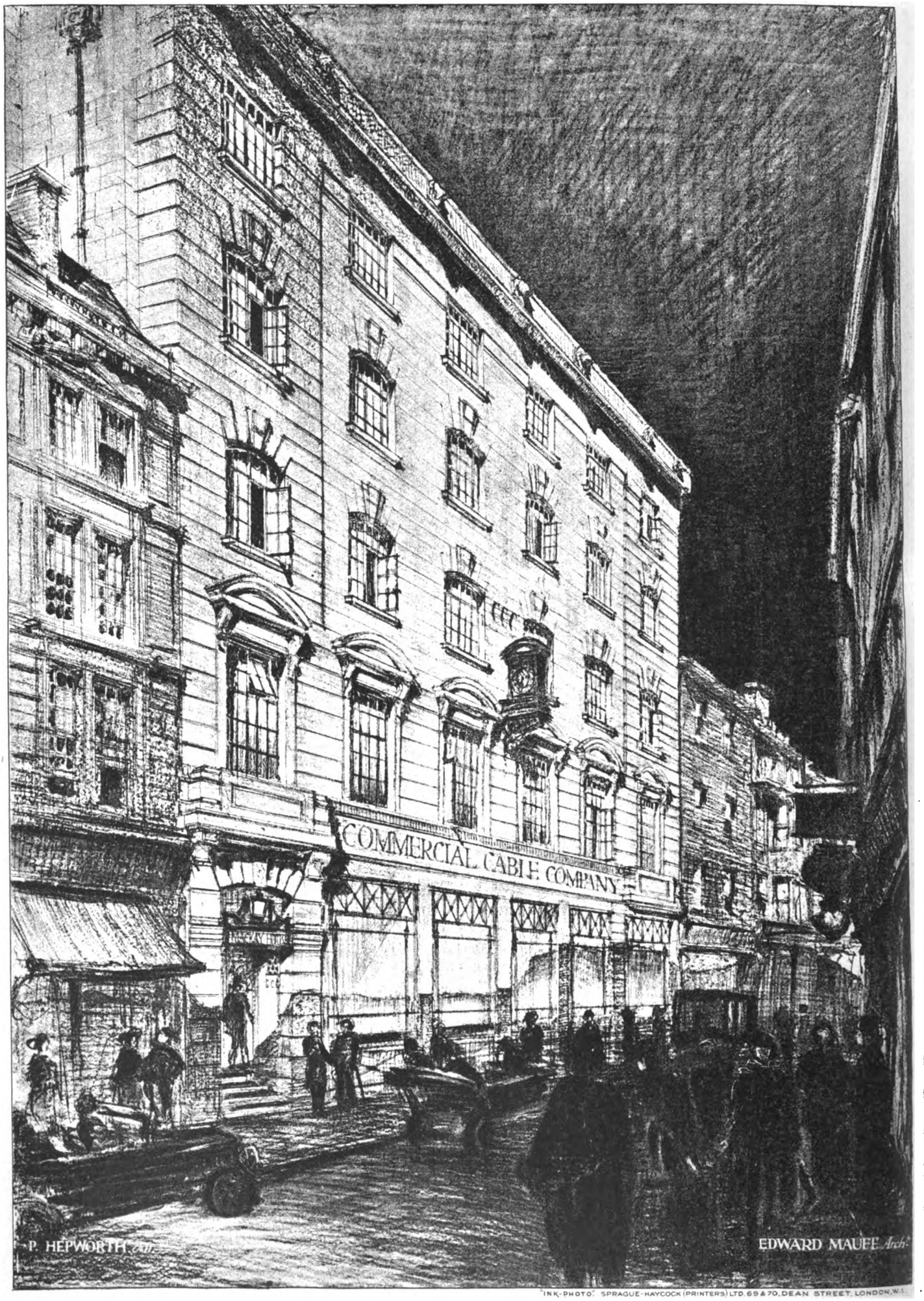
62. *A small marble version of the Garrick Shakespeare, probably that on the model of which Roubiliac is represented as working in the portrait by Carpentier, in the National Portrait Gallery, in the possession of Colonel Shakespeare, given by Warren Hastings to the great-grandfather of the owner. This very beautiful little work is altogether finer and more spirited than the Garrick statue, and has a canto from "Hamlet," engraved on a contemporary brass plate let into the pedestal on the left. I have to thank the owner for an introduction to this figure, and for the photograph here reproduced.

[5] Dussieux says there were only six, and of these only three are identifiable! (*op. cit.*, p. 136).

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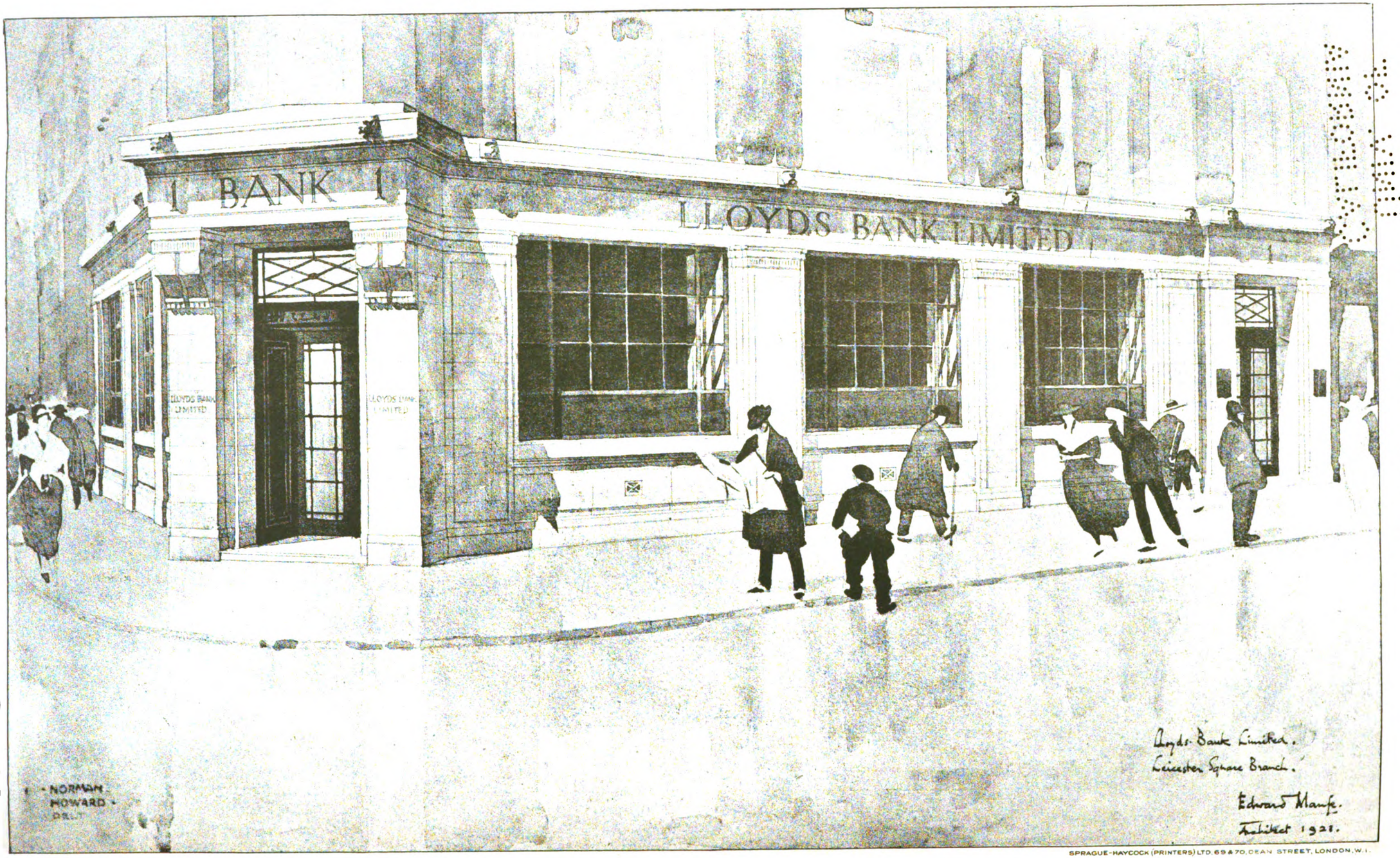
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DRAWING BY P. D. HEPWORTH

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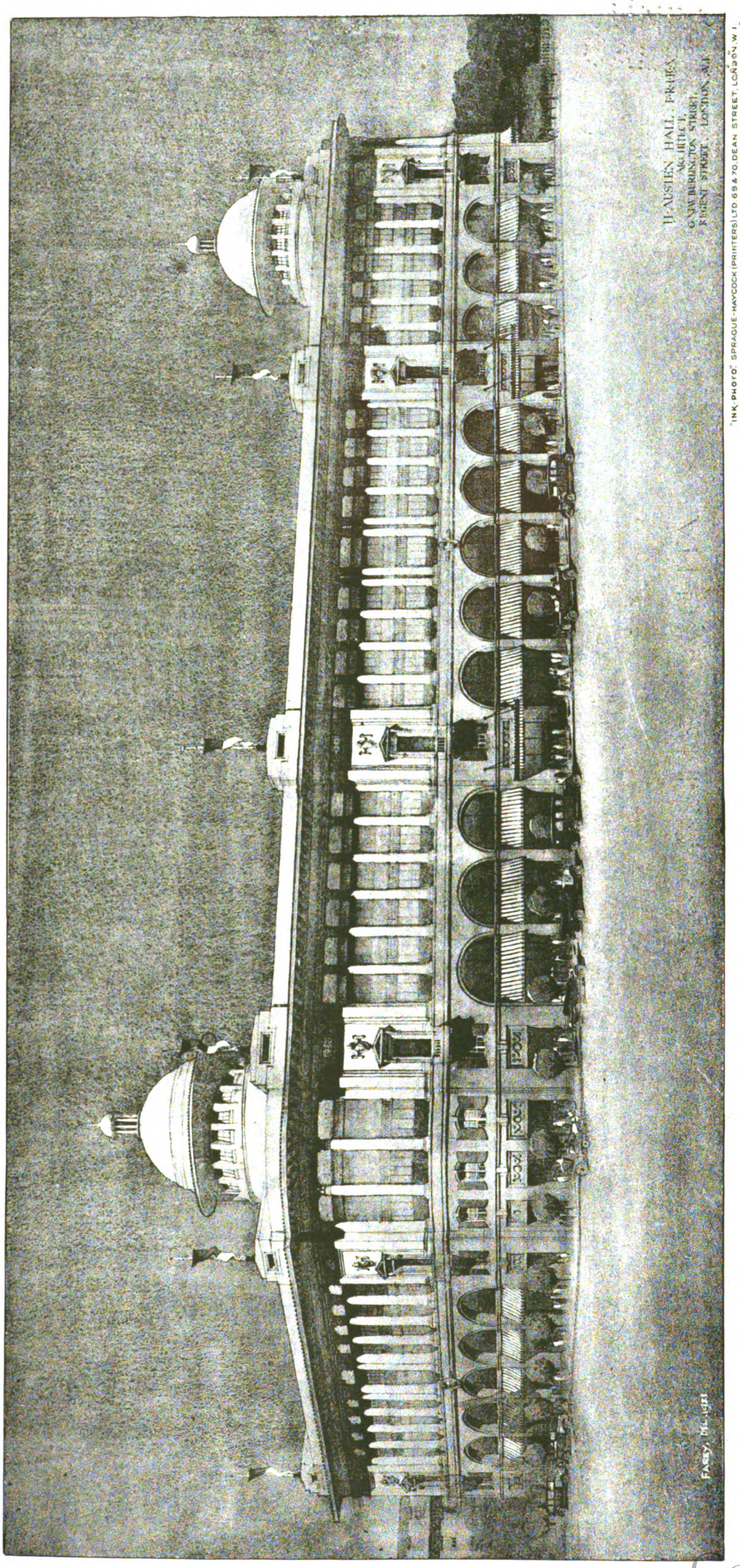


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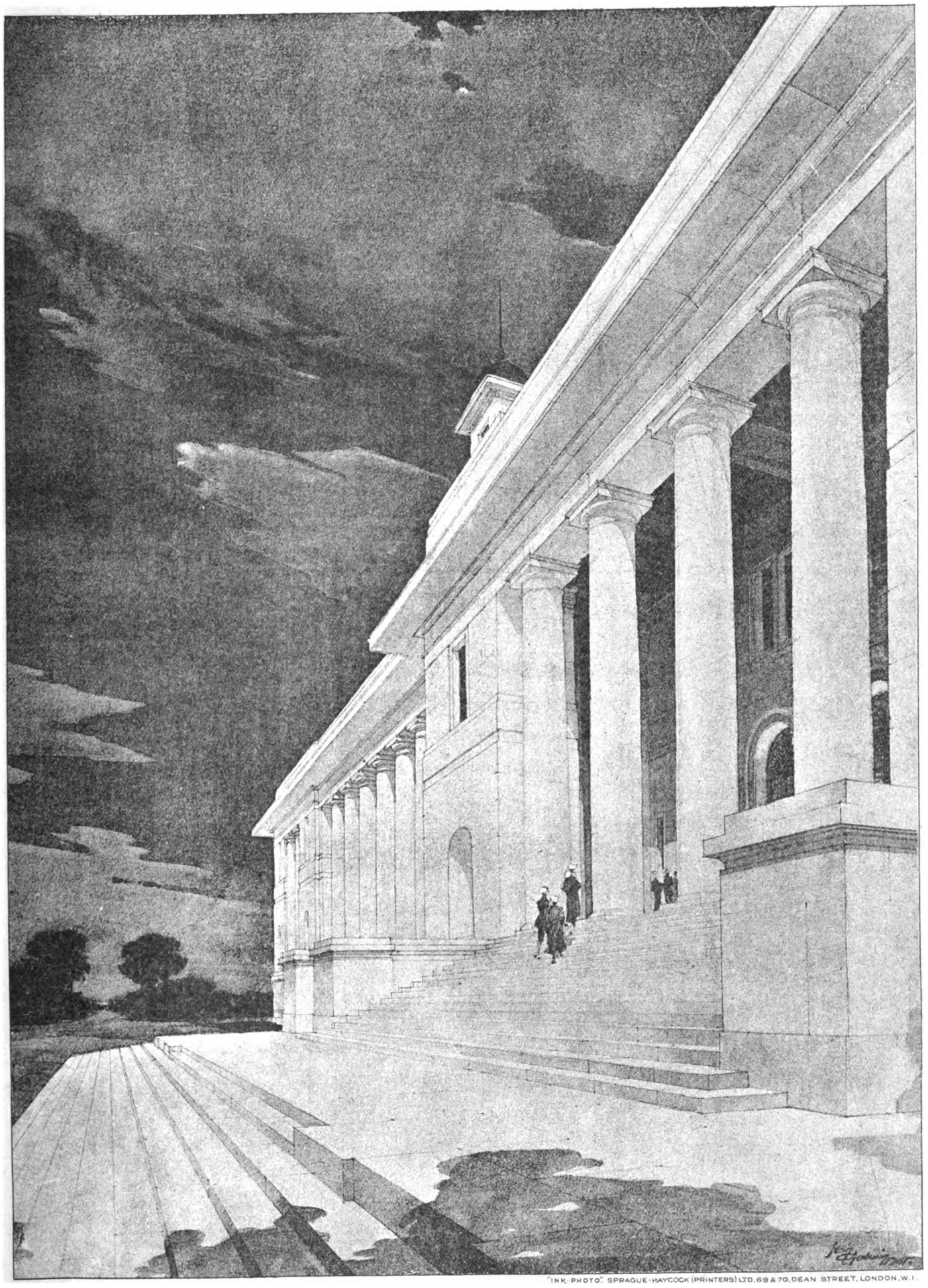
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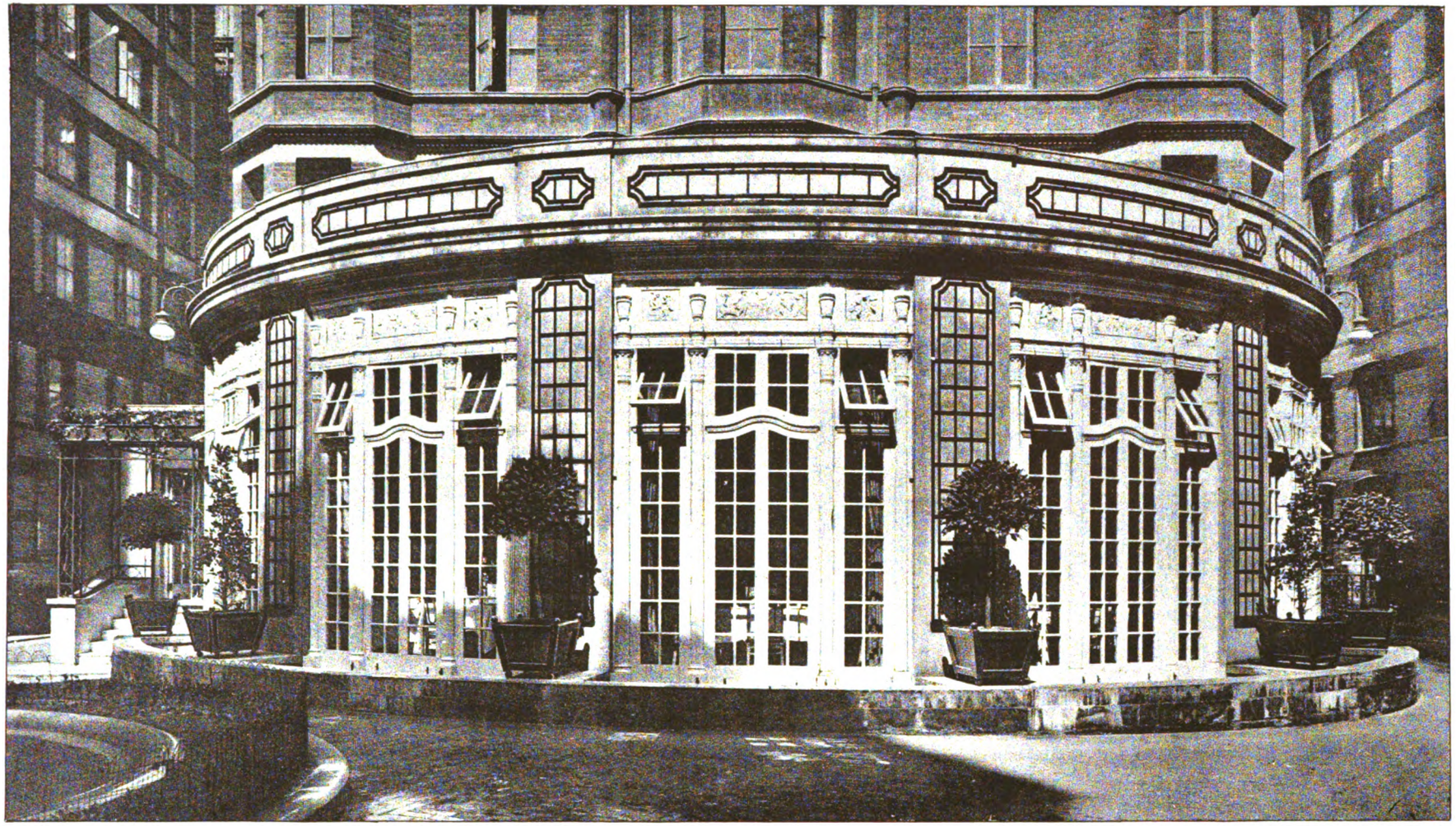
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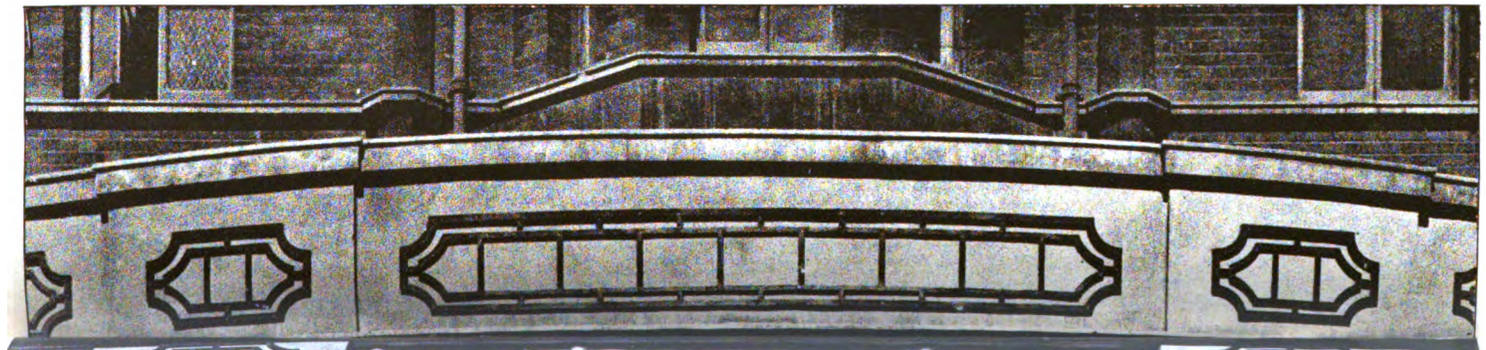
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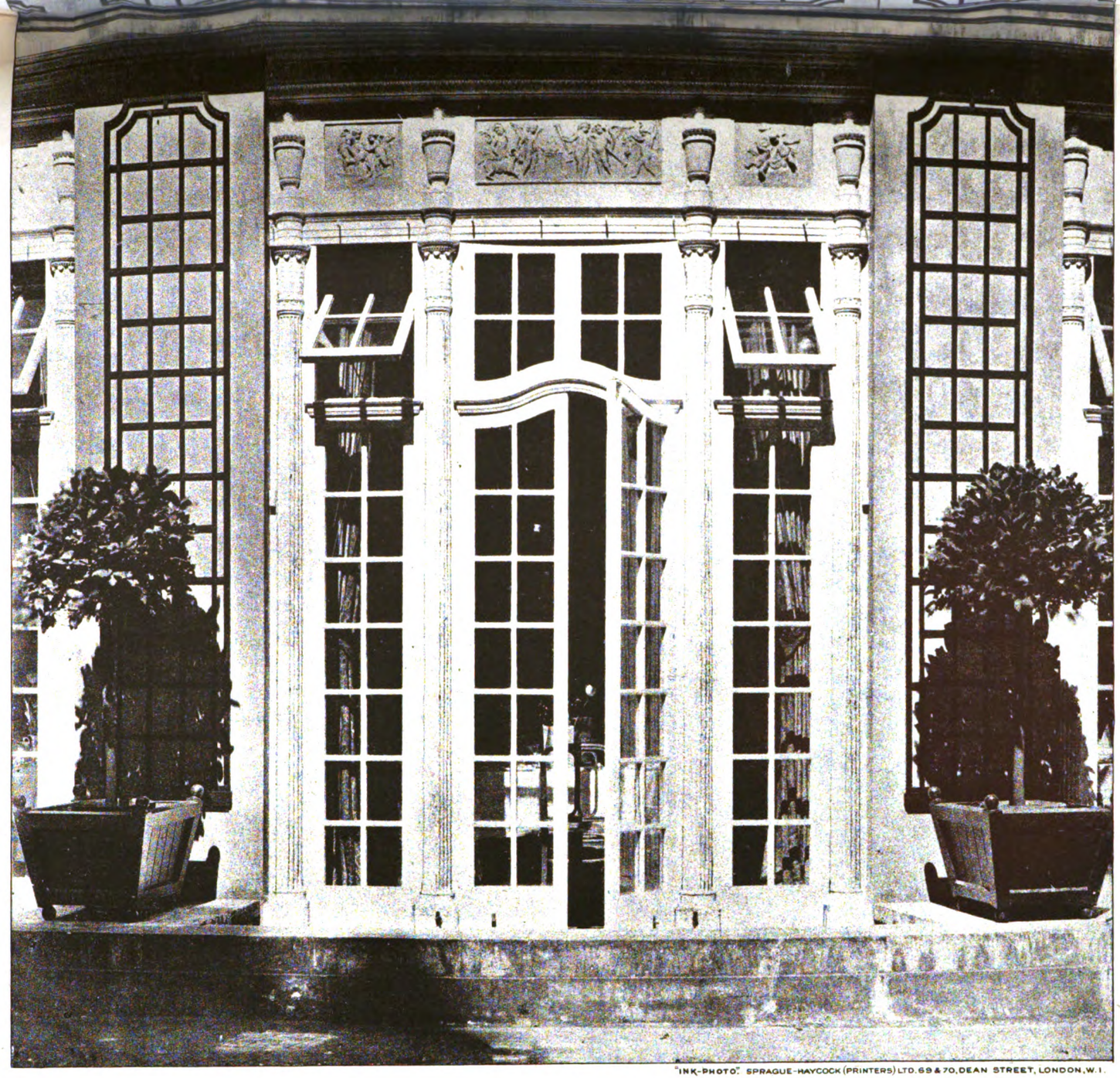
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63. Bust of Charles I., Matson, Glos., executed for G. A. Selwyn in commemoration of the fact that "the King came to Matson with his two sons, 10, August, 1643." (cf. "Gentleman's Magazine," 1788). cf. No. 54 supra.

64. *Charles I., terracotta model in the British Museum, perhaps a study for the Matson portrait.

65. Medallion portrait (described by de Sainte Croix as a superb statue!) of Edward Capell, "from a model in plaister taken from the Life by Roubilliac 1759," engraved by Bartolozzi as the frontispiece to Capell's "Notes to Shakespeare." I have been unable to trace this work.

66. Design for a monument to General Wolfe, reproduced in the "Gentleman's Magazine," Vol. LIX., Pl. I., much interesting matter by its owner, Edward Bridgen, will be found in the previous volume (LVIII., pp. 668-9). "Ruobiliac," he says, "told the story like a genius, the other (i.e., Wilton whose design was chosen) like a newspaper"; Lord Chesterfield's epigram that "Roubiliac only was a statuary, the rest stone-cutters," comes from the same periodical. Bridgen calls Roubiliac "the Phidias of his age," and his remark that "he was often present while Roubiliac was moulding and demoulding it," is interesting as a sidelight on the sculptor's conscientious methods. The model was given to him by Roubiliac, whose intention of executing it in marble for Westminster Abbey was frustrated by his death. Wolfe is shown dying in the arms of a splendid winged Victory, and he is represented in uniform, as in West's picture of 1773 which roused a protest from Reynolds, who preferred a classic costume. In the Wilton monument heroic nakedness is insisted on. *A second model for the same work was sold by Panton Betew to Nollekens (Smith's "Nollekens," ch. VII.), and there is a drawing for it in the Soane Museum.

67. *Terracotta model of Sir Hans Sloane in full dress. British Museum.

68. *Terracotta model of Cromwell. British Museum.

69. *Terracotta model of Milton. British Museum.

70. *Rape of Ganymede. Model shown at the Manchester Exhibition of 1857 (No. 90 in Catalogue).

71. Monument to Handel (ob. 1759), Westminster Abbey. The admirable *study for this work in the Ashmolean Museum at Oxford.

72. *Monument to Richard Boyle, Viscount Shannon, Walton-on-Thames, an elaborate work disliked by Chantrey, but admirable in its handling, both of Shannon and his mourning daughter, Lady Middlesex.

73. Monument to the Lynn family, Southwick, Northants. Roubiliac's receipt for £600 for this work is said to be still extant.

74. Bust of Wilton, now at the Royal Academy, exhibited at the Society of Artists in the Society of Arts' Great Room, 1760, remarkable for the introduction of the arm and sculptor's hammer after the manner of Roman busts of the third century.

75. Another "busto," *Ibid.*

76. *A model of Shakespeare, *Ibid.* This is possibly the terracotta in the Victoria and Albert Museum.

77. "Two models representing Painting and Sculpture in a Pediment," *Ibid.*, executed for Hydson's parlour chimney-piece in his house in Great Queen Street and afterwards in the possession of Nollekens.

78. Portrait of himself in oils, "his first attempt in that medium."

79. Half-length portrait of Edmund Thomas Warren, the only other oil portrait of Roubiliac's known, now only traceable through the mezzotint by Jones. The historian of music is holding a book, and the work shows all the careful treatment of detail characteristic of Roubiliac's work in sculpture.

80. *Bust of Hogarth in lead, on view (1922) at the Victoria and Albert Museum, lent by Lieutenant-Colonel Croft-Lyons. An excellent portrait, rather older than that in the National Portrait Gallery, but closely allied to it, and with the characteristic details of embroidery, &c. found on the Sir John Cass, but not present in the terracotta Hogarth of the National Portrait Gallery.

81. *Busts of Dr. and Mrs. Salmon in lead, Victoria and Albert Museum, attributed to the school of Roubiliac, but certainly by him. The persons represented are Dr. Nathaniel Salmon, the historian of Hertfordshire, and his wife.

82. *Bust of Admiral Vernon, in the possession of Lord Vernon; a nineteenth copy by J. Francis, in the Painted Hall, Greenwich.

83. *Statue of George III., Royal Exchange, Dublin.

84. *Monument to Dr. Sir T. Molyneux, Armagh Cathedral, a beautiful work, the figure worthy of comparison with the Newton itself.

85. To these we must add a series of drawings in the sketch-book in the Soane Museum alluded to in previous chapters. These include a monument inscribed "Mr. Jobe," which I cannot identify, with a child angel weeping over an urn; one representing a lady reading with an angel hovering over her; and a pen-and-ink study for the Wolfe monument, differing in several details from the model.

The models in the British Museum so often alluded to were bought after Roubiliac's death by Dr. Maty, the principal librarian, and by him presented to the Museum in 1762, they were long exhibited in the Ceramic Galleries, but are now in private rooms. Their artistic value is quite remarkable; they deserve comparison with the famous series at Trinity, and bear out Tom Moore's remark, already quoted, that "the fine lines and marking" were afterwards "softened down or omitted in the marble." A comparison of the Museum models with the finished busts at Cambridge is, in fact, essential for the full understanding of the work and methods of the sculptor.

We have already dismissed various works ascribed to Roubiliac as by other sculptors, and to these we must add the monument to Bishop Hurd at Worcester, ascribed to Roubiliac by so careful a critic as the late Austin Dobson (D.N.B.). The fact that the sculptor died forty-six years before the prelate needs no comment.

One of his activities, that of a botcher of antiques, we only know through J. T. Smith, who gives his receipt for mending "broken ancient marbles." "He mixed grated Gloucester cheese with his plaster, adding the grounds of porter and the yolk of an egg, which mixture, when dry, forms a very hard cement." What statues he so restored Smith, unfortunately, does not say.

(To be continued.)

"The Architect" Fifty Years Ago.

JUNE 15, 1872.

THE STRIKE.

The transactions of the week are as follows:—The masters' meeting of Friday last week, offered to submit the questions at issue to the arbitration of the Marquis of Salisbury and Lord Derby. A committee of masters was then appointed to act in all circumstances, so that no delay might occur. The men, at a general meeting of delegates, on last Saturday evening, accepted the principle of arbitration, but demurred to the arbitrators appointed, and the condition imposed by the masters that the men should return to work. A written reply was forwarded by the men to the masters on Monday morning to that effect.

The masters' committee met the same afternoon and invited the men to send a deputation next day to arrange the terms of the arbitration, the principle being admitted. The reply of the men's committee was that they had no power without summoning a general meeting of delegates, and the matter was therefore adjourned till Thursday afternoon at two o'clock. Not being able, however, to arrange the matter in time, at the instance of the workmen's deputation, the conference was postponed till Friday, and a meeting of the committee of the Central Association of Master Builders was held instead to deliberate upon the present situation. The committee was still sitting when we went to press.

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"Styl."

(The Organ of the Prague Association of Architects.)

The journals and reviews emanating from the district which is now Czecho-Slovakia have always been notable for their high standard of attainment. Particularly was this the case with those devoted to artistic interests. They were noticeably good during the pre-war period, while yet the Czech nation was labouring under the Teutonic yoke. And, though the war threw its whole artistic life into temporary abeyance, yet it is once again in evidence since the new nation has arisen, phœnix-like, from the ashes of its former self.

There is, throughout the new Republic, every indication of a healthy and praiseworthy activity in every branch of artistic effort. Since its emancipation it has put forth many art periodicals—marking its new autonomy by the employment of its own strange language—and manifesting a remarkable florescence of individuality.

Among these publications architecture, naturally enough, is not forgotten. As in other countries, the aftermath of war brought with it a crop of architectural problems to be grappled with. And we find its present attitude towards these expressed in the pages of "Styl," the organ of the Prague Association of Architects.

So long ago as 1907 the germ from which it has grown was sown in Prague under the title "Perspektiv," but the present publication has actually been metamorphosed from the German "Form," issued from 1914-1918. Appropriately enough, it starts its new lease of life in Czech, with its entirely new title "Styl" (style).

Devoted as it is to architecture and decoration, it represents the modernist school with outlook and aspirations towards national ideals. With this end in view, there is hope that it will settle down eventually into a medium of expression of more than passing interest to architects of other countries. In the earlier numbers some few projects are just a little too much tinged with German ideas that have been forced upon this country in the past—a heaviness of conception and mere originality rather than an alertness of imagination. In another direction there is some evidence of ultra-modernism, due perhaps to the inevitable swing of the pendulum, which is already (in the latest numbers to arrive) giving way to a more sober type.

But, apart from these slight blemishes, there is in its pages much to interest the professional architect, even though he be unable to hew his way through the craggy language of the text. For it is well illustrated with half-tone plates and text illustrations in line which speak for themselves to the technical eye. Town planning is treated of in more than one article, and improvements in the capital city of Prague are handled with a breadth of outlook and much originality. Prague has its housing problem even as London has, and proposals for its relief are dealt with. One of the most striking solutions takes the form of gigantic apartment blocks built around garden quadrangles. Recent legislation on the question is the subject of one article, while another gives some account of the housing crisis in London for the delectation of Czech professionals.

Practically the whole of one number is devoted to its national war memorials, many examples of which are illustrated and described by various hands. In the examples given one sees a pronounced searching for originality in expression. But here and there one is reminded over much of Teutonic barbarity of the Leipzig memorial type.

The more general aspects of architecture are not neglected in the text. In the very first number the present condition of Czech architecture is commented upon, while "The Position of Architecture and Construction" and "Standardisation in Construction" are titles which show they are alert and up-to-date in their outlook. "The Picturesque in Architecture" touches upon the debateable question of colour schemes as an exterior, decorative feature. "Form and Expression" and "The Conscience of the Architect" are titles elsewhere that strike one as being the expressions of men wide awake in the interests of their profession.

Altogether, it may be said that this journal gives ample evidence of the "go-aheadedness" of this new nation—evidence that it is its wise intention to throw itself wholeheartedly into the arts and business of peace. Czecho-Slovakia certainly seems the most alert and active of the new States created by the war, and quite possibly it may be its destiny to strike the tonal note of a new school of mid-European architecture. In any case the Prague Association of Architects is bound to have a leading part in forming the architectural ideas of this new nation, and "Styl" will doubtless continue to be the authoritative medium of its expression.

Competition News.

Ramsgate Corporation are inviting competitive plans for the development of the West Cliff extension.

The Borough of Batley are inviting competitive designs for a war memorial. Particulars may be obtained from the Borough Engineer at the Town Hall, Batley.

Lytham District Council are about to invite competitive designs for the erection of a public hall and baths, the premiums to be 100 guineas, 50 guineas, and 25 guineas respectively. The scheme is to include a public hall to seat at least 1,500 persons, a large lower hall swimming bath (not less than 73 feet long and 40 feet wide) and other baths. Mr. A. W. S. Cross, vice-president R.I.B.A., will, as we have previously announced, act as assessor.

The Great Western Railway Company announce that the adjudicators have made their awards in the poster competition. Out of nearly 3,000 competitors the following have been successful in securing the three prizes:—1, 100 guineas, Mr. Laurie Taylor, London; 2, 75 guineas, Mr. Tom Gentleman, Glasgow; 3, 50 guineas, Mr. S. Kennedy North, London. The task of adjudication, it is stated, was made difficult by the large number and variety of the entries, many of which were pictures of a high standard but not considered suitable for reproduction as posters, a factor taken into account by the adjudicators.

Out of thirty applicants for the post of county surveyor to the Merioneth County Council, Mr. William Owen Jones, assistant surveyor, Wrexham, has been appointed at a salary of £500. Mr. Hugh Davies, assistant surveyor, Welsh Town Planning Trust, Cardiff, was appointed assistant surveyor out of twenty applicants at a salary of £275.

The Adwick Urban Council has given instructions to the surveyor to prepare a scheme to cope with the additional sewage of 500 houses, proposed to be erected for the employees of Bullcroft and Brodsworth Main. The surveyor intimated that it meant scrapping part of the old works, and a scheme got out some years back was estimated to cost £30,000.

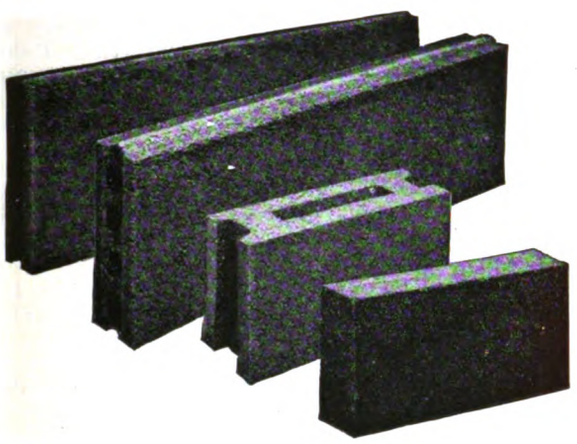
The London Plywood Manufacturing Co. Ltd. desire us to announce that they have altered the title of their firm to the "London Plywood and Timber Co. Ltd." Their address will still be the same, 384 Old Street, London, E.C. 2. The London Plywood and Timber Co. Ltd. are holding large stocks of timber to meet all requirements, and invite inquiries for any class of timber, plywood, &c.

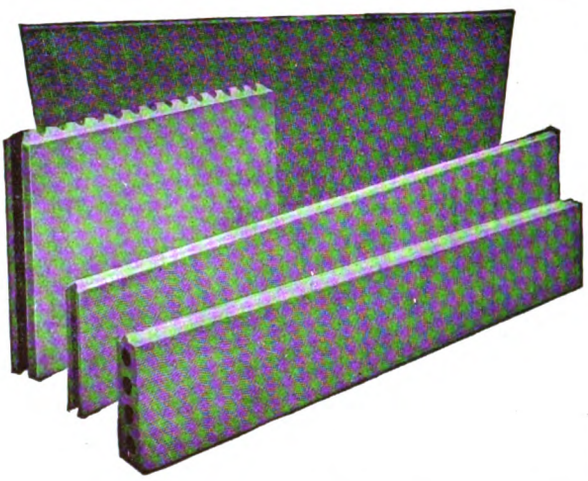
The Electricity Commissioners have approved the scheme for co-ordinating the electrical supplies over an industrial area of fifteen miles round Manchester, in Lancashire and Cheshire, touching slightly Derbyshire and the West Riding, which was submitted to them at a special inquiry at the Manchester Town Hall in January. The carrying out of the scheme will involve an expenditure of about £13,000,000 in the next ten years, and means dispensing with seven or eight small stations.

Some misunderstanding has been caused by a notice that the National Building Guild, Limited, is in voluntary liquidation, and that a meeting of the creditors is shortly to be held in Manchester. This only means that the original company which founded the Building Guild a few years ago is being dissolved because there has been an amalgamation of the parent organisation with other building guilds since formed in various parts of the country, including London, the whole being known as the National Building Guild. The headquarters will continue to be in Manchester. "We were never so busy as now," said an official last week; "We have contracts in hand amounting to considerably over £3,000,000, and we have the financial backing of the National Federation of Building Trades Operatives."

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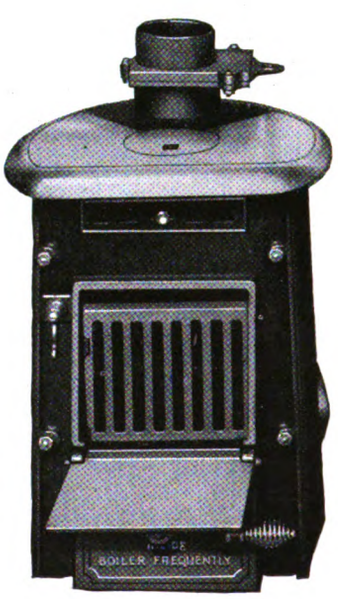
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New Books.

"Drawing for Art Students and Illustrators." By Allen W. Seaby. (B. T. Batsford, Ltd.) 12s. net.

This is one of the best books we have ever seen on drawing and is beautifully illustrated with sixty-eight plates which show every type of drawing both by students and by the masters on the foundation of which modern instruction is based. It should prove invaluable to those whose only opportunities are afforded by some small provincial school or to the numerous class of those who have to teach themselves without direct tuition. It is especially valuable at the present time, when our art schools have been criticised as factories for turning out commonplace nondescript work of little value because it does not represent drawing as being an art easily acquired; but the effect of its assimilation would rather be to make students wonder if they had the necessary ability to ensure success. Drawing is, in a word, shown as it is with all its difficulties, and the student is advised to concentrate both thought and effort on the mastery of form, the analysis of light and shade, while he is warned of the pitfalls which lie in the path of all who have not carefully trained their powers of observation. The student is, in a word, advised how he should learn to draw rather than instructed in the manner of the art schools of the past to take short cuts to the manufacture of pleasing studies, and he is clearly told why certain methods are right and others wrong. Its various sections cover the Bias of Vision, Proportion, Type Forms, Construction, Tone Study, The Figure, Related Figures, Edge Study, Artistic Anatomy, The Early and Modern Representation of Form, Drawing from Memory, Animals, Plant Forms, Drawing as a Preparation for Painting and for Illustrations, The Drawing of the Masters, and other subjects.

"Charterhouse in London." By the Rev. G. S. Davies. London: John Murray. 25s. net.

A public school can only be fittingly described by one who is imbued with its history and traditions, and the Rev. G. S. Davies has achieved a difficult task with complete success. Every stone of its buildings and every incident of his long and varied history give colour to a work which will be treasured to all those who have been educated in one of the most famous of our historical foundations.

The book deals with the history of the monastery from its foundation by Sir Walter de Manney in 1371 until its suppression in 1533, a suppression carried out, like others, with a harshness and injustice, which would have confirmed the population in the ancient faith had not the Maryan persecutions brought about the English Reformation.

During the succeeding period it was known as Howard House, and Lord North entertained Queen Elizabeth within its gates, while the last tenant, Lord Howard, Earl of Suffolk, sold it to Thomas Sutton for £13,000, a sum which indicates the great value of the property.

After this follows the history of the famous school through which 2,000 poor brothers have been educated since the year 1611, and the removal of the school to Godalming under the auspices of the late Dr. Haig Brown, one of its most noted masters. The struggle which led to the removal is vividly described.

An appendix contains a long list of the boys who have passed through the school, and notes of the regiments they served in during the recent war, when Carthusians, like other public schoolboys, served their country well, winning fresh distinctions for the old foundation.

The style and distinction of this work by one of the school's great classical masters forms in itself a defence for the retention of classics in our schools, as the book is distinguished for its literary grace and style. The book is printed and illustrated well, and Dr. Davies can claim, like another poet, "*exegi monumentum:*"

New Catalogues.

The Relay Automatic Telephone Co. Ltd., Marconi House, Strand, W.C., have sent us a copy of a souvenir of the opening by Sir William Noble, M.I.E.E. (Engineer-in-Chief to the British Post Office), of the "Relay" telephone exchange which has been installed at the head offices of the "Liverpool Courier" and "Express" in Victoria Street, Liverpool. This system has received the benediction of the Postmaster-General, who is prepared to supply it to any subscriber on rental, and that of many experts. Private "Relay" automatic telephone exchanges are now in operation in important English cities like Leeds, Portsmouth, and Newport, and are under consideration for others, including the metropolis. It was recently said by Professor Fleming that the development of the automatic system represented the high-water mark of human creative power. The "Relay" switchboard does the whole work of establishing whichever connection may be signalled without the aid of human intermediaries.

Catalogue No. S2, issued by Saml. Haskins & Bros. Ltd., 20 Old Broad Street, E.C., the store equipment specialists, has been especially compiled as an aid to architects and builders. The firm was established as far back as 1784, and hold a unique position in the trade. So long a life is itself a guarantee of merit. But their high reputation is based on something more than longevity. The illustrated catalogue under notice is a clear demonstration of alertness, thoroughness, and good workmanship which would do credit to the very latest arrival in the field. A considerable portion of its fifty well-printed and well-illustrated pages are devoted to roller shutters of all types, in wood and steel, for which "Haskins" have carried out some very large contracts. Outside shop sunblinds, of which they are the original makers and patentees, as well as those for the inside, are another feature. The examples of their bronze and art metal work are so good that one regrets there are not a larger number of photographs: craftsmanship up to the standard of that of Messrs. Whiteley's, in Queen's Road, Bayswater, would always be interesting. Separate lists are obtainable for their work in connection with lifts, stall-boards, collapsible gates, wrought ironwork for all purposes, interior equipment, &c.

"The Broad View" is the happy name bestowed upon the house magazine recently inaugurated by Broad & Co. Ltd., of 4 South Wharf, Paddington, W., and seven other addresses. One point emphasised therein is that the firm are actual manufacturers, and either make or supply practically every standard material required for sanitary and building work. Sanitary specialists, ironfounders, and manufacturers of Portland cement, bricks, drain-pipes, and fire goods, Broad's cater for the building trade in a manner which does not belie the comprehensive significance of their name. The first issue of "The Broad View" deals tersely with topics of peculiar interest to the buyer of building materials. Cement prices is one, and information is given as to Broad's action in resisting the discontinuance of the 2½ per cent. cash discount for monthly settlements.

Cafferata & Co., Newark-upon-Trent, have issued an illustrated booklet entitled "The Rapid and Economical Erection of Interior Walls and Partitions," which is devoted to the Cafferata reinforced plaster slabs. These slabs are formed of pure plaster, reinforced with selected reeds, and are made in one size only (3 ft. by 1 ft.) and in two thicknesses (2 in. and 2½ in.). The slabs are of a convenient size and light weight, and can be easily handled. They are tongued and grooved, fit snugly together, and present a solid and continuous base, thus securing economy in the priming coat, for which a good key is provided. The slabs are held in position by 3½-inch or 4-inch round wire nails, which are the only accessories required for erection. Cafferata gives a plaster base for a plaster face, and thus ensures a thoroughly durable and homogeneous partition. It is absolutely clean, sanitary, sound-proof, and fire-proof. Another advantage of Cafferata is the absence of transit breakages, for the slabs can be transported and stored without special precautions. They can be sawn or cut into any shape with perfect ease and with an unbroken edge. Cafferata slabs can be used for the external walls of one-storey bungalows and small additions to works, if they are generously covered with a good lime-wash. The plaster takes up the moisture, leaving the lime in the form of a hard external coat.

A very useful booklet issued by the Rawlplug Company Ltd. under the self-explanatory title of "Tips on Odd Jobs about the House" should be of real value to the innumerable amateurs who are ambitious of tackling a few of the

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simpler domestic constructional problems of upkeep. The pages cover a number of those minor ills to which all houses are heir, ranging from worn out washers to broken window panes, and describes how they can be remedied. Of course, special but not undue attention is paid to all those troubles which can be cured or prevented by the use of Rawlplugs. The booklet will ultimately be sold at 1s., but may be obtained gratis on sending to the company at Gloucester House, Cromwell Road, S.W., a receipt for the purchase of a "Rawlplug" outfit.

Messrs. Shaw, Knight & Co., Ltd., Fylands Fireclay Works, Bishop Auckland, Co. Durham, have prepared a new preliminary illustrated catalogue of about fifty pages, containing a selection of modern designs (with prices) of enamelled fireclay baths, lavatories, closets, sinks, urinals, and other sanitary specialities for every description of building.

Two four-page leaflets in a stout folder represent the germ of what we expect will expand into a goodly catalogue when the merits of "Ferodo" stair treads become more and more widely known and the possibilities of the material are developed. These treads are made from cotton, specially woven, and bonded by a patent method which gives them the durability of iron. They are produced in three types, three colours, and two thicknesses for general use, and may be fitted to wooden, iron, or stone staircases. The method of so doing, as well as list prices and hints as to details required when ordering, are given in these pages. The list of a few of the users of "Ferodo" treads shows what a multiplicity of different kinds of building have been so equipped. Perhaps the most eloquent testimony of the resistance of the material is the fact that the specimens returned to Ferodo Ltd. (Sovereign Mills, Chapel-en-le-Frith) after three years' use on an escalator at a London underground station show little wear, despite the fact they were used by 26,000 passengers daily.

We have received from the Trussed Concrete Steel Co. Ltd. a new booklet dealing with their "Truscon" hollow floor. This brochure has been carefully compiled, and the illustrations and letterpress clearly describe the method of erection. Soundproof, flat-span floors always appeal to architects, and as this floor is designed on the T-beam principle and is claimed to be the most economical on the market, it will no doubt be popular. Briefly, it may be said that a light-weight "Truscon" floor consists of deep reinforced concrete joists 4 inches thick placed on edge 2 feet apart, linked up by a thin concrete slab on top and a suspended ceiling underneath. The system has already been extensively used in Great Britain and the United States. Two contracts in London are the British Columbia Building and the new premises in Regent Street for Messrs. Cox & Co., the Army bankers.

The General Electric Co. Ltd. has recently issued a new edition of their complete catalogue of electric light fixtures, on which all prices have been revised to the present-day level. The catalogue contains some 160 pages and over 600 illustrations of pendants, brackets, ceiling fixtures, electroliers, standards, and bronzes in designs suitable for every domestic and public lighting requirement, and is of a most complete and comprehensive nature. Copies may be had on application to the General Electric Co. Ltd. at their head office, Magnet House, Kingsway, W.C. 2, or at any of their numerous branch establishments.

We have also received from the General Electric Co. a copy of a new edition of their electric light supplies catalogue, in which all prices have been revised to present-day level. This comprehensive list is replete with illustrated descriptions, with dimensions, weights, and prices of distribution boards, cut-out boards, branch switches, "H. & H." snap switches, wall-plugs, ceiling roses, lampholders, &c., in great variety suitable for all conditions of service. Copies of both catalogues can be obtained on application at Magnet House, Kingsway, or from any of the General Electric Co.'s numerous branches.

Chimneys Ltd., 47 Victoria Street, London, S.W., in a neatly-produced brochure, show by means of photographs some twenty contracts on which they have erected tall chimneys, in many instances more than one. In one of their pronouncemets the company very truly say that a chimney-stack is a distinguishable feature of every manufacturing centre, and yet "how often but little thought is given to the design and correct proportions in order to achieve the best results, namely, increased power and the most economical consumption of fuel." These are the all-important aims; but it is not impossible to give a certain distinction to these skyscrapers without any sacrifice of utility. It is, of course, a specialist business, and Chimneys Ltd., who are in the van, offer their wide experience and the services of their practical staff. The company specialise in the design, erection, and repair of both brick chimney shafts and concrete chimney shafts (on the "Monnoyer" patent system), as well as in boiler and economiser settings, water towers, cooling towers, &c.

"Splicing and Socketing of Wire Ropes" is a booklet which does not strictly come under the heading of "Trade Catalogues." It is published by Messrs. Bruntons, the steel wire manufacturers, of Musselburgh, N.B., at 2s. 6d., and deals with the subject on its own merits. Mr. T. F. Paskins, the author, has aimed at making the operations so clear that they could be successfully carried out by a novice. This he achieves by simple phraseology and remarkably helpful diagrams. No matter how apt the novice may become, however, he should always remember the advice given in the concluding sentence: "Examine wire ropes often, and order a new one before the old one is allowed to break and cause serious damage."

Messrs. John Gibbs & Son, Liverpool, have reprinted from a souvenir supplement of "The Journal of Commerce," in connection with R.M.S. "Aquitania," an account of their ventilating appliances as introduced into that, among many, Cunard liner and other steamers. It is obvious that steamship ventilation presents peculiarly difficult problems. Messrs. Gibbs are the more to be praised for their success in the solution of them.

General.

Canon Cecil Cooper, M.A., Vicar of Scarborough, writing in St. Mary's "Parish Gazette" with reference to the proposed church at St. Columba, mentions that Mr. Leslie Moore (the architect) has visited the site. "We understand," adds the vicar, "that at the present time building prices are 2¼ times more than in 1914, and this means that the original plan of the new church would cost to-day about £20,000. The site is a very difficult and costly one, as it necessitates so much in the way of foundations, and the architect has promised to send us a further report."

The Institute of Scottish Architects, whose membership now stands at about 580, will hold their sixth annual convention at Inverness on Friday, 16th inst. A civic reception to the visitors is to be given in the Council Chamber of the Town Hall by the Provost and Magistrates. At the business meeting the retiring president, Mr. A. N. Paterson, F.R.I.B.A., Glasgow, will deliver an address. As his successor in the presidential chair, Mr. T. P. Marwick, A.R.I.B.A., Edinburgh, has been nominated by the council. The annual report refers to the proposal by the R.I.B.A. to prepare a new building code for the United Kingdom but gives the council's view that more successful results would be obtained by the Institute in Scotland acting so far independently but in collaboration with the R.I.B.A. towards the production of a separate Scottish code. The subject of architectural education is also discussed in the report.

At the last monthly meeting of the Rotherham Borough Council reference was made to the acceptance of fresh tenders, at the instance of the Ministry for the erection of seventy-six additional houses on Section B, Doncaster Road housing site, non-parlour type, £360, a reduction of £80; and parlour type, £405, a reduction of £120. The contractors were Messrs. William Higgins, Limited, of Northampton, twenty blocks of two parlour houses, £16,200; Messrs. Charles Sprakes and Sons, of Doncaster, nine blocks of four non-parlour houses, £12,960.

Sir Alfred Mond states that the number of houses completed by local authorities and public utility societies is as follows:—1919, 100 houses; 1920, 9,171; 1921, 68,255; 1922 (to May 1), 30,135. In addition 33,308 houses had been completed up to May 31. Information is not available as to the number of houses built or building by private enterprise outside the Government subsidy, but Sir Alfred points out that the subsidy to private builders continues to be payable in respect of qualified houses completed by the 23rd inst.

Messrs. George Mills & Co., Ltd., Radcliffe, near Manchester, have received the following testimonial *re* a fire at Heywood cotton-mill extinguished by their sprinklers: "We are again pleased to testify to the efficiency of the 'Titan' sprinklers, as we have had a second fire in our new fireproof mill on the 9th ult., which was again extinguished very satisfactorily.—Wm. Wild, Ltd., Heywood."

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The New Council of the R.I.B.A.

THE result of the Council Elections gives a definite and decisive lead to the profession, and one the trend of which cannot be disputed. The majority report on the subject of Unification and Registration is shown to be supported by a minority of the profession, while the Minority Report has the overwhelming support of a majority of those voting. Practically everyone who has supported the policy of the late Council has "gone under" without respect to any personal motives which might in other times have made them strong candidates for the support of the electorate. We cannot say we regret the result, because as we have often said we regard the wide measures of Unification which were proposed with dislike, though at the same time we were inclined to believe they represented the most logical basis the supporters of Registration could devise on which to buttress up their case. As we regard statutory Registration as both undesirable and unattainable, we are not inclined to regret the adoption of a method which may render an unlikely success a little more doubtful. We take it that the new Council will now proceed with as little delay as possible to promote a measure of Registration in the manner in which they have indicated.

The results of the Election definitely dispose of both Unification and Registration save on one basis, and that basis is now clear cut. The profession wants statutory Registration if it can obtain it without weakening the qualifying tests for the Associateship, and within these lines it should be possible for a strong committee to arrive at a conclusion within the next twelve months.

When that is done, and when—as we anticipate—the attempt has failed, the board will be cleared for the adoption of a policy which we believe will advance the interests of architects better than the panacea which has appealed so strongly for so many years to a majority of architects.

The reforms which we hold are most needed are the adoption of the principle of the referendum on all important controversial matters—a referendum which can be put in operation either on the demand of a certain number of members, or at the initiative of the Council itself. We believe in this because the majority of the members of the Institute do not and cannot attend the meetings at which important decisions are made, and the result of the voting of such meetings frequently affords little indication of the wishes of the members of the Institute as a whole. The adoption of a referendum would give increased power to provincial members, whose influence would—as it should be—be as powerful in important matters as that of the metropolitan members of the Institute. In addition, at a meeting men are frequently chary of expressing views which are in opposition to those of prominent men, and decisions frequently go by default.

There is also no reason why the members of the Institute should have to await the next election before showing that in their opinion the policy of a Council is not to their liking. We are also strongly of opinion that the Council should be composed of the best men in our profession, and not simply of those who will support a policy which is popular with the majority. Were controversial issues disposed of in the manner we have indicated, what we suggest would be feasible and easy of attainment. We may instance the fact that Sir Edwin Lutyens has only just secured election on the new Council, not because of any want of appreciation on the part of members of the Institute, but because he is probably more or less indifferent to what is regarded as a "burning issue."

Another much-needed reform is the radical overhauling of the system of dealing with public competitions and their assessors. The fact that we are compelled by the existing method to acquiesce in totally wrong decisions; and that the Institute, while doing all it can to insist on an assessor's award being accepted as final, has no machinery for revising those awards when they can be proved to be unjust or incompetent, has long been a scandal, and one which has prevented our profession from performing efficient services to the public.

The position of a judge is not detrimentally affected by the existence of a Court of Appeal, but the interests of justice are maintained, and so it would be with our competitions if every decision could be revised on sufficient grounds being given. Such a professional Court of Appeal need not be costly, and might be amply protected from frivolous misuse by insisting on a certain deposit being paid by any aggrieved competitor to be forfeited if he did not succeed in proving his case, while in cases where he did another assessor should be appointed to whom the fees of the assessor first appointed should be paid. It may be argued that some men would refuse to assess competition on these terms, but these are precisely the professional advisers whose services we should be perfectly willing to lose. An assessor usually formulates his own conditions, and having done so may reasonably be expected to give a decision conforming to them. We believe the two reforms we have mentioned would do more to increase the status of the Institute, both within and without its ranks, than any reforms which have been advocated for years.

There is no royal or easy road by which we can gain the "appreciation of the public" which has bulked so largely in professional discourses for a long time. If we are competent and do good and useful work our status will gradually improve and our position be strengthened, but no campaign and no advertising propaganda is likely to help us very much. As far as we can interpret public wants, and intelligently work out solutions to difficult problems we shall gain ground, but we believe that more depends on the fitting use of the powers and opportunities we have than on any increase of power and scope we may try to secure for ourselves.

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Modern Methods in Building Construction.—XXII.*

By Albert Lakeman, M.S.A., M.C.I.

FOUNDATIONS ON SOFT SOILS.—(*continued*).

Waterproofing.—Reference has been made to the difficulty of rendering the basement or lower part of a building watertight when the structure has to be carried down below the surface-water level, and although the introduction of steel sheet piling may result in a sufficiently watertight barrier during construction it is not generally practical or advisable to consider this as a permanent means of keeping out the water from the finished building. Usually this steel sheet piling will be withdrawn when the work below water-level is completed, and in addition the use of pumps is frequently necessary to take care of the water that leaks through the piling before withdrawal, and the structure must therefore be designed to make it independent of piling or pumping as regards its watertightness. There will also be a tendency for the water to rise upwards through the floor of the building, and this portion of the structure must therefore be waterproofed, with the result that a continuous watertight layer or medium must be formed or provided over the whole surface of the walls and floors below the highest level to which the surface-water may rise under adverse conditions. The importance of effective waterproofing cannot be overestimated, as the use of the lower floors will be impossible if water penetrates in any appreciable quantity, and even if the penetration is small, and dampness only results, the work must be considered extremely unsatisfactory as the proper use of this part of the building will be interfered with. Dampness will make the building unhealthy for occupation by workers; goods stored on the lower floors will become damaged, and in addition the structure itself will be liable to decay through the action of the moisture, which induces rot and corrosion. The problem of waterproofing must therefore be considered very seriously as one which vitally affects the use and life of the building, and a method of construction which is otherwise good will not be suitable if it fails to provide a dry interior when the work is finished. Architects have frequently met with trouble arising from dampness in the basement floors of buildings. Even when apparently no great quantity of water has been present in the soil, and this is probably because the serious nature of the problem has not been apparent during the execution of the work, and thus there is some advantage in the fact of dealing with cases where sufficient water is present to make the provision of watertightness an obvious necessity.

It must be realised that prevention is much better than cure in the case of dampness in buildings, because it is much easier to provide an effective watertight medium when the construction is in progress than after the work is complete, especially where a fairly large head of water has to be dealt with outside the walls of the structure.

When waterproofing is necessary, it is frequently a difficult matter to decide the most effective form in which this should be applied, and a few notes on the different systems that can be adopted will illustrate this difficulty. Generally speaking, there are six different modern systems of waterproofing, which are as follows:—(*a*) surface coating; (*b*) membrane; (*c*) mastic; (*d*) integral; (*e*) self-densified concrete; and (*f*) grouting process. These systems are again sub-divided into various classes according to the material used, as for example the surface coating may consist of the application of a bituminous material, a wash of some chemical solution forming a layer of insoluble material, or a coating of plastic material containing a powder or liquid waterproofing compound in certain specified proportions. Again the surface coating may be applied by hand or machine, and if by hand the brush or the trowel may be used and thus the systems as above described cover only the general principle adopted, and much consideration is necessary when deciding on the application of each type. The membrane system is quite distinct from the surface coating, as this method consists of providing an elastic and continuous layer of waterproofing material round the whole structure, but which is itself protected by other materials on each face, as for example, the use of one or more layers of waterproof felt cemented together with a bituminous material, and placed in the thickness of a wall or floor would come under the definition of "membrane waterproofing." The membrane may also consist of sheet lead, metal plates as in tunnel work, or even waterproof paper, according to the character and magnitude of the work. It is extremely important to make the membrane absolutely continuous, and provide effective protection both during construction and after the work is finished. If the material selected is a bituminous felt it will be apparent that there is a serious risk of the membrane being damaged by the carelessness of workmen after it is in position by the dropping of tools or materials on the surface, which would cause a puncture in the material, and even an excessive amount of walking on the material after it is laid down for the waterproofing of the floor will cause damage, and render the membrane practically useless. The mastic system consists of the application of a material such as asphalt in a continuous layer to surround the building to be waterproofed, or the building of some part of the thickness of the walls and floors in bricks or blocks with bituminous mastic to provide a strong waterproof layer which will resist considerable water pressure. When asphalt is used this is frequently applied as a continuous layer within the thickness of the walls and floors, and thus it becomes a membrane, and may be classified as a mastic-membrane method. The integral system of waterproofing is one wherein the mass composing the floors and walls are made impermeable by the incorporation of certain ingredients which act as void fillers. These ingredients may consist of finely-ground powders, such as clays, silicates and hydrated lime, or liquids and pastes such as soap, or oil compounds, and they are applied either to the dry cement, the water used for mixing or to the mixed mass, according to the nature. The object of the integral system is to make the whole of the construction itself sufficiently watertight to avoid the necessity of any additional application of surface or membrane waterproofer, and it can be considered good in principle, but subject to some risk owing to the difficulty of preventing cracks occurring which will render the percolation of water possible. Self-densified concrete is the system which covers the practice of making the concrete or the mortar itself impermeable by the proportioning and mixing of the constituent materials so as to create as dense a finished mass as possible. It is quite possible to make concrete of reasonable thickness absolutely watertight, but it is frequently difficult to guarantee the result, as good workmanship is essential, and the human element cannot always be depended upon. The aggregate must be scientifically proportioned, the mixing must be thoroughly executed, and the correct

*PART I.—I. Introduction, Steam shovels, Jan. 13; II. Steam shovels, Trench diggers, Jan. 20; III. Grab buckets, scrapers, Jan. 27; IV. Drag-line excavators, Feb. 3; V. Derricks and cranes, radial loader, paving-breakers, Feb. 17; VI. Surplus Soil Transport (Hand Labour), Feb. 24; VII. Surplus Soil Transport (Horse-drawn wagons, Steam-driven wagons), Mar. 3; VIII. Surplus Soil Transport (Steam-driven wagons), Mar. 10; IX. Surplus Soil Transport (Steam-driven wagons, Petrol wagons, Narrow-gauge track with wagons), Mar. 17; X. Surplus Soil Transport (Narrow-gauge track with wagons, Trucks on Standard-gauge track, Electrically-driven trucks and vehicles), Mar. 24.

PART II.—XI. Foundation Work (Ordinary soils, Soft soils), April 7; XII. Foundation Work (Soft soils), April 17; XIII. Foundation Work (Soft soils), April 21; XIV. Foundation Work (Soft soils), April 28; XV. Foundation Work (Soft soils), sheet piling, May 5; XVI. Foundation Work (Soft soils), steel-sheet piling, May 12; XVII. Foundation Work (soft soils), steel-sheet piling, pumping, May 19; XVIII. Foundation Work (soft soils), pumping, May 26; XIX. Foundation Work (soft soils), foundation, piles, June 2; XX. Foundation Work (soft soils), foundation piles (*cont.*), June 9; XXI. Foundation Work (soft soils), foundation piles (*cont.*), June 16.

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amount of water must be used in the mixing. It is essential that a machine be used for the mixing as hand-mixed concrete is liable to be uneven in quality, and consistency is very necessary to provide a uniformly dense material. The placing of the mixed concrete and the avoidance of poor joints are also important factors, and good supervision will be necessary throughout the whole of the work when the system of waterproofing is adopted. The question of cracks occurring which will allow water to percolate as mentioned in connection with the integral system will also apply to the self-densified system. The last system of waterproofing which was described as the grouting process will not be generally applied to building work, as it is more applicable to tunnels and similar features, but it may possibly be useful for dealing with pipe subways or small underground chambers which are subject to considerable water pressure on the outside. A cement grout is injected through the walls or roof of the structure, being dealt with generally with a cement-gun or pneumatic grouting-machine, the injection being made through any cracks, joints, or small pipes suitably arranged, until it is impossible to pass through any more material or there is evidence of the whole of the ground immediately around the structure being thoroughly impregnated with the grout. This method, when well executed, is a very effective one, as the grout will form an excellent impervious barrier outside the structure, and, owing to the application taking place after the building of the walls and floor are completed, it cannot be damaged by the building operations. The use of grouting has been successfully adopted for underground work in America when water is present in the soil, and the method is likely to be more extensively applied when the machines for grouting are brought to a higher state of perfection, and the cost of executing the work can be reduced.

Without going into all the details of materials and methods of application in each of the foregoing methods —which would entail a description occupying many pages—it will be realised that there is considerable scope in the waterproofing of structures, and much will depend on the experience of the designer, the skill of the supervisor, and the quality of the materials used as to the results obtained in the finished building. Each method would appear to have its advantages and disadvantages, and the perfect waterproofer will be difficult to find. Surface coating when applied to the inside surface of a building is not likely to withstand considerable pressure, but it has the advantage that it is visible and can be inspected easily during execution and after completion. At the same time, the mass of the structure itself is not protected from the action of the water. If the surface coating is applied outside it will be necessary to excavate beyond the walls of the building for a sufficient distance to allow the application after the walls are erected. The membrane method can be made very effective, but the joints may well become a source of weakness. Once it is executed and covered up no weaknesses can be remedied without considerable expense and trouble, and it is therefore highly important to carry out the work in a first-class manner. Considerable surface water had to be dealt with when the Royal Automobile Club was erected in Pall Mall, and a head of water of several feet outside the basement walls had to be provided for. The method adopted was the membrane, and the material used was asphalt, which was placed in the thickness of the walls and the floor to give a continuous layer around and under the whole structure, forming practically an asphalt-lined tank, in which the building stands. The work was carefully executed, and when completed and pumping ceased was found to be quite successful, and no seepage occurred through the structure except at one small portion of the ejector chamber, which was constructed at a level much below the general basement level. This chamber was eventually lined on the inside with impervious stone, and after the application no further water or dampness appeared.

The mastic method, other than the membrane, can be made effective, but, generally speaking, it will be found too expensive when compared with other methods. It can therefore only be justified when the conditions are exceptionally bad. The advantage of the integral system is that the structure itself is rendered impermeable to moisture, but, like the self-densified concrete, the quality of the work is not apparent to the supervisor, and the only practical test of the watertightness of the work is that provided in the structure itself when the water comes into contact with the walls and floor, and, should the test prove that watertightness has not been achieved, it is too late to change the quality of the material.

Failures that have been experienced by some architects and engineers when applying the integral method have caused it to be viewed with suspicion by many, and the absence of a guarantee that it will be effective is sufficient reason for the condemnation of the method by many others; but this does not prove that the method cannot be successfully adopted when the work is executed with reliable materials under expert supervision. To summarise these general notes on waterproofing, it can be stated that (*a*) there are many methods in use, (*b*) they all possess some disadvantages, (*c*) it will be difficult to guarantee any one system, and (*d*) the watertightness will depend on the quality of the materials and workmanship rather than on the method adopted. There are several patent methods and secret ingredients on the market to-day, and some of these have been extensively used, while very strong claims are put forward by the firms who supply the ingredients as to the merits of their respective products. Some of these claims are based on laboratory tests and others on actual results obtained in work executed, and while the former tests may be useful they are obviously far from conclusive, because the ideal application of the ingredients can be guaranteed in the laboratory but not on the site of building operations. The supplier of the waterproofing compound is not in a position to guarantee the effectiveness of his material unless he is in a position to control absolutely the application, and thus an undertaking that the ingredients will make the work watertight is of little value to the architect or contractor if, in the event of failure, the plea can be raised that the workmanship may be responsible, and, as before stated, the integral method does not readily allow the discovery of defects by inspection after the work is complete. The failure may be due to the workmanship or the ingredients, but it will be difficult to fix the responsibility on either if the work appears fairly satisfactory on the face. In the case of self-densified concrete, failure will, of course, be due to the proportioning and workmanship, and the responsibility can be fixed, although the remedy may be difficult.

These general notes may be considered by some readers to be of a pessimistic nature, but the subject of waterproofing is one of the most difficult to deal with in building operations, while failures have been far too common in the past owing to the casual manner in which it is generally dealt with. At the same time, the building-owner will naturally experience considerable disappointment if the basement of his building is damp and unsuitable for general use, and the prestige of the architect and contractor will suffer in consequence. Experience in dealing with problems of this nature will prove a great asset, but a general knowledge of available methods will always prove useful as a guide to possibilities when faced with conditions which are unusual.

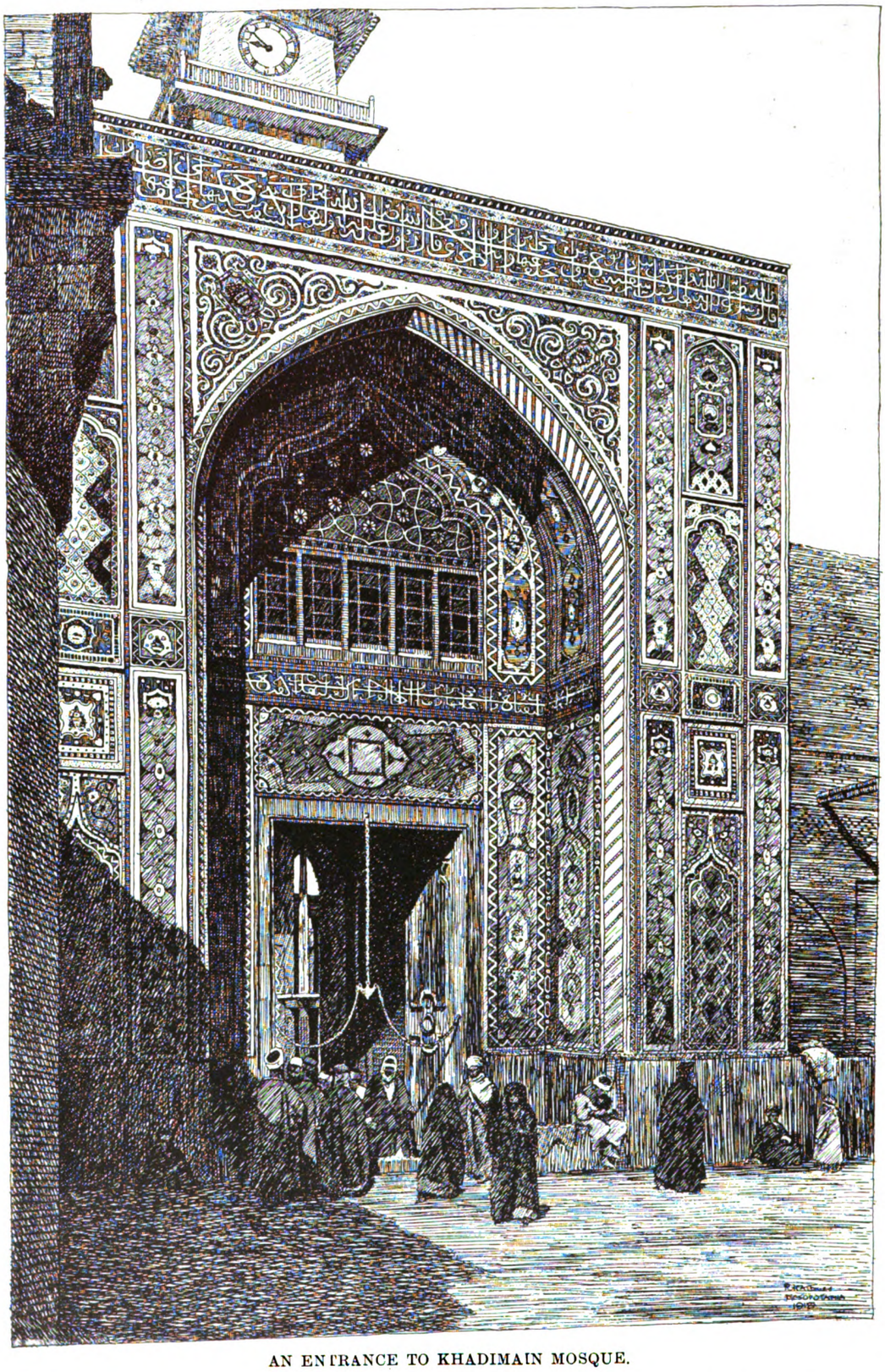
(*To be continued.*)

Mr. George Eley Halliday, F.S.A., F.R.I.B.A., of The Hermitage, Fairwater, Llandaff, architect and surveyor, a former President of the South Wales Institute of Architects, who died on April 5 last, aged sixty-three years, left estate of the gross value of £5,798, with net personalty £5,672. Probate of his will has been granted to his widow, the sole executrix, to whom he left all of his property absolutely.

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Mesopotamian Architecture.

By R. H. A. Jones, A.R.I.B.A.



AN ENTRANCE TO KHADIMAIN MOSQUE.

One's first impression of a Mesopotamian town is not a very favourable one.

This is partly accounted for by the signs of neglect and decay which meet the eye at every turn, and by the fact that to enter almost any town it is necessary to pick one's way through innumerable graveyards and refuse-heaps.

Once in the narrow streets, however, there is much of interest to be seen.

The natural soil, either in the form of mud or lightly burned bricks, forms practically the only building material. This tends to give a uniform shade to everything, which would be very monotonous were it not relieved by the brightly coloured domes and minarets of the mosques. A note of interest and colour is also given by the picturesque clothes worn by the inhabitants and the many-hued wares displayed for sale in the bazaars.

Nearly all the larger houses are of brick and are built on the plan of a central internal courtyard, round which runs a projecting balcony. Wooden columns with ornamental capitals support the balcony.

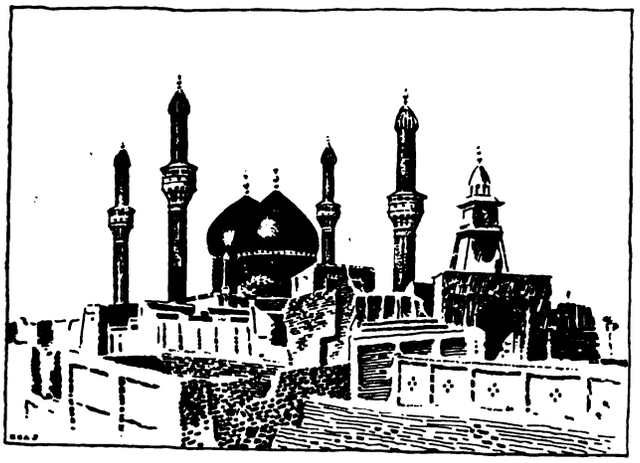
The courtyard is entered by a doorway and a passage,

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the latter frequently having a turn in it to prevent the interior being seen by anyone passing.

Occasionally the entrances are quite handsome, the surrounds being in coloured tiles or cut brickwork and the door itself often enriched with metal studs.

Usually the upper storeys are built out on carved



KHADIMAIN MOSQUE.

wooden brackets, and owing to the streets being exceedingly narrow, often nearly meet.

The lower part of the window openings are enclosed by screens of lattice or turned wood in various geometrical patterns. This is to ensure privacy, and here the ladies of the harem sit and gaze unseen. Water jars are also generally placed here to cool.

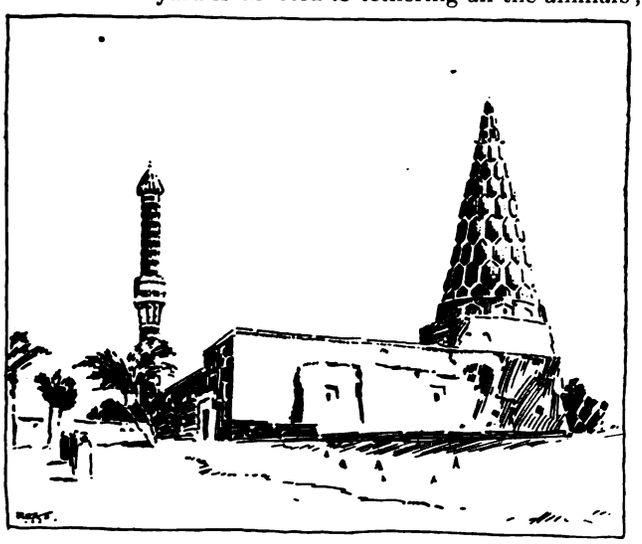
On the ground floor the windows are invariably small and high up in the room. Often an external recess in the wall serves as a shop.

During the intensely hot summer day the family retires to a basement room, which is kept additionally cool by means of one or more air shafts carried up above parapet-level and facing north. At the botton of the shaft a screen of coconut fibre or similar material soaked in water cools the air as it passes through.

Most of the houses fronting the river are provided with large balconies, these being often used as cafés and present a very animated appearance.

Another important feature of Mesopotamian architecture is the Khan or travellers' inn, which serves to accommodate the numerous caravans plying between the towns.

A central yard is devoted to tethering all the animals;



OMAR'S TOMB, NEAR BAGHDAD.

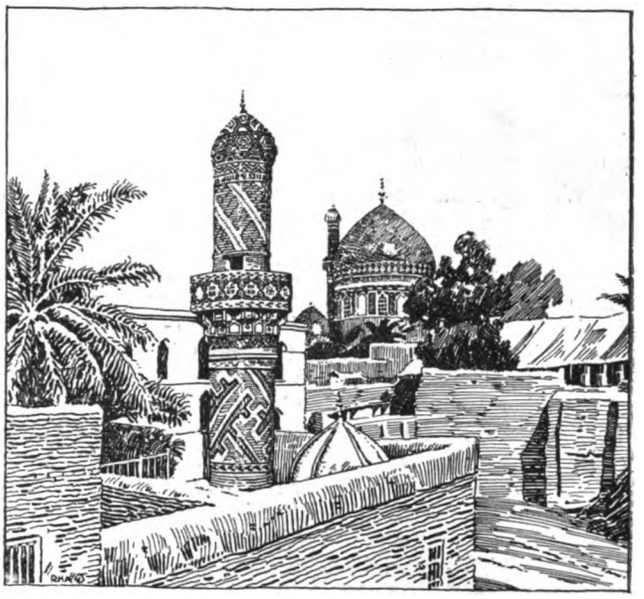
surrounding this, and generally two or three feet above ground-level are several bays for the attendants and to display any merchandise there may be for sale. These are arched over, and behind are large rooms with brick or wood columns supporting the vaulted roof.

Ventilation and light is obtained by a hole in the apex of the vaulting and by slits high up in the walls. As a rule part of the building is carried up another storey.

The British forces during the late War found these buildings most useful as dumps and billets.

Undoubtedly the chief architectural interest of Mesopotamia centres in the mosques, the neighbourhood of Baghdad being particularly rich in this respect.

Perhaps the most beautiful is that of Khadimain, situate on the west bank of the Tigris about seven miles north of Baghdad.

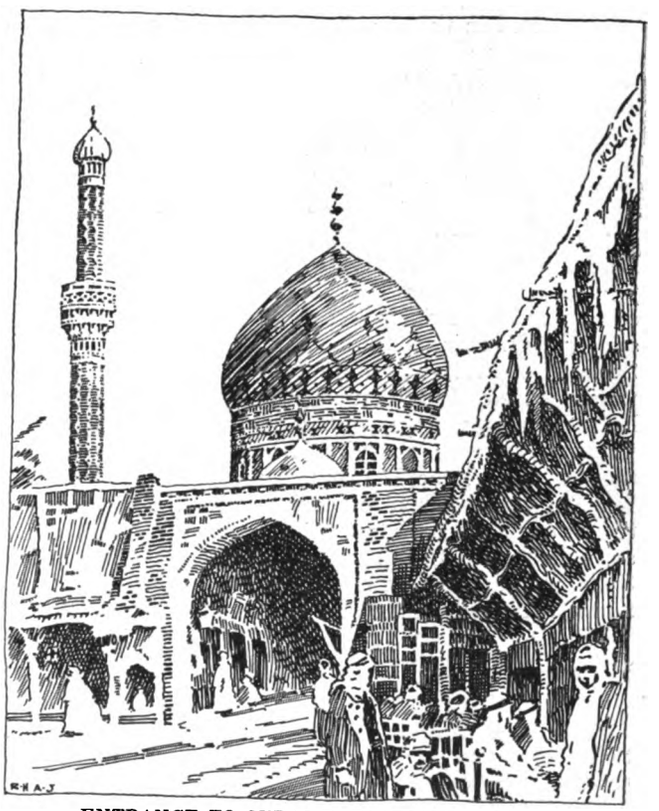


FROM CITADEL ROOF, BAGHDAD.

It is the principal mosque of the Shiah sect of Mohammedans, and is a sacred placed of pilgrimage.

Enclosed within a rectangle, it has several large and very beautiful entrances, all or which are most zealously guarded.

The openings are in the form of pointed arches, the spandril and surrounds being covered with a mosaic of



ENTRANCE TO SERAI BAZAAR AND MOSQUE.

glazed bricks and tiles in the most brilliant colours. The detailed painting is extraordinarily fine, floral motifs being the most usual.

Both the two domes and the four large minarets are entirely overlaid with gold plates, reputed to be ¼-inch thick.

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Hemmed tightly round as it is by buildings the only way of obtaining a good view of the mosque is by mounting to the adjoining roofs. The remarkably fine effect is well worth the trouble and "baksheesh" involved.

A note of incongruity is struck by the modern clocks which have been fixed to this and several other mosques in Mesopotamia.

Almost invariably the exterior of the domes of the larger mosques are enriched with coloured tiles, generally in shades of blue. These are very effective and have a peculiarly soft tone, especially when seen from a distance.

The interior pendentive work marking the transition from the square base to the circular drum is usually very simply and beautifully treated.

Writings from the Khoran are much used in the form of bands in coloured tiles (usually dark blue and white), but apart from these the walls are quite plain.

The mosque of Sheikh Abdul is one of the most interesting in Baghdad, the principal dome, under which the Sheikh is supposed to be buried, being of a much flatter shape than usual. This is the most important Sunni mosque in Mesopotamia.

Another form of dome is of conical shape, much used for tomb architecture. It is usually built up in a honeycomb pattern and covered with stucco. Two notable examples are the tombs of Sheikh Omar and Zobeidah, both being near Baghdad. The latter is supposed to mark the burial place of the favourite wife of Harun-al-Raschid, the Great Caliph, immortalised in the "Arabian Nights."

Brimingham Advisory Arts Committee.

A deputation from the Birmingham Civic Society waited upon the Lord Mayor (Alderman D. Davis) about three months ago, with the object of interesting him in a scheme for the formation in the City of an Advisory Arts Committee, to which all new designs for public buildings, bridges, statues, fountains, monuments, and memorials to be erected in the streets, public parks, or any municipal building should be first submitted. His lordship undertook to lay the scheme before the Committees of the Council likely to be affected, and all of them approved the idea, subject to their having a perfectly free hand as to what should be submitted to the Advisory Arts Committee, or whether or not they should adopt the criticisms and advice which might be given.

At a meeting on the 16th inst. presided over by the Lord Mayor, and attended by several Chairmen of Corporation Committees, Sir Gilbert Barling (Vice-Chancellor), and the Principal of the Birmingham University and Mr. W. Haywood (Honorary Secretary to the Civic Society), a draft constitution for the new Committee was approved. The Committee will consist of the Lord Mayor, a representative of the Public Works Committee, the City Surveyor, the Vice-Chancellor, the Principal of the University, the Director of the School of Art, the Director of the School of Architecture, the President of the Birmingham Architectural Association, the Chairman and Honorary Secretary of the Birmingham Civic Society, and a representative of the Education Committee. A clause in the draft constitution sets forth that hereafter all new designs of the kind referred to above shall be reported on by the Advisory Arts Committee.

The Royal Institute of British Architects has elected the following as Honorary Associates: Dr. Thomas Ashby, D.Litt., F.S.A., Director of the British School at Rome, Valle, Giulia, Rome; Mr. Charles Francis Bell, M.A., F.S.A., Oxford; Mr. A. Clutton-Brock, B.A., Godalming; Mr. S. C. Cockerell, M.A., Director of the Fitzwilliam Museum, Cambridge; Mr. L. Cope Cornford, London; Rev. D. H. S. Cranage, D.Litt., F.S.A., Cambridge; Mr. H. Greville Montgomery, J.P., London; Mr. E. H. New, Oxford; Mr. R. Randal Phillips, London; and Mr. Henry Owen Weller, B.Sc., M.Inst.C.E., Director of Building Research, 16 and 18 Old Queen Street, S.W. 1.

The Relief of Housing from Taxation.

The United Committee for the Taxation of Land Values have issued a circular on the subject of the exemption of houses from taxation, copies of which have been sent to all Liberal and Labour members of Parliament.

The circular quotes replies by the Minister of Health and the Secretary for Scotland in the House to questions on the progress of house building in New York City, where new houses, it is stated, are exempt from municipal taxation for a period of ten years. Statistics are given, and the United Committee say:—

"With tax exemption in force house building was increased nearly fourfold. The evidence is conclusive that the exemption from taxation has caused extraordinary activity in housebuilding, and has helped very materially to meet the shortage of house room in New York. It cannot be doubted that a similar policy in this country would have equally profound effects."

We believe that the above recommendations are sound, though the further proposals of the Committee which propose the heavier taxation of unoccupied land are neither feasible or economically sound, for it must be remembered that a man frequently buys land for development before he is in a position to carry out building, and an addition to the taxation of such land would tend to check enterprise.

"The Architect" Fifty Years Ago.

JUNE 22, 1872.

THE BURNT BUILDINGS OF PARIS.

The official engineers and architects of the city of Paris are now busy at the Luxembourg drawing up the programme for the reconstruction of the Hotel de Ville. This programme, after being elaborated with great care, will be discussed by the Commission for Architectural Works, and then submitted to the Prefect of the Seine, who will finally bring it before the Municipal Council. When all the points are discussed and settled, designs for the building will be invited, and six months allowed the competitors to produce their plans and drawings. The drawings are to be to the scale of 0.01, and must be accompanied by complete and detailed estimates. Nothing is said at present about any limitation, so probably the competition will be open to the architects of all Europe.

M. Thiers, it is said, is extremely anxious to see the buildings all restored as quickly as possible, and loud complaints are made of the present aspect of the wing of the Tuileries which skirts the Rue de Rivoli, the hoarding which encloses the crumbling walls being covered with hundreds of glaring posters and trade puffs of all kinds. There is no doubt that the aspect of the fine street is hideously injured by this mass of vulgar placards, but a few days' labour would remedy that. As to the immediate re-building of the Tuileries, he must be a sanguine man indeed who expects that it can even be commenced this year, though certainly the ground might be cleared, and much of the evidence of the destruction got out of the way. It is true that the portion of the palace and its dependency which faces the Rue de Rivoli stands in a very different position to that of the main front; no one objects to the reconstruction of the former with its corner pavilion, while the greatest possible diversity of opinion exists as to the rebuilding of the latter, and a large number of persons are in favour of the plan already mentioned in our columns—that of leaving the whole space between the lateral buildings open to the Place de la Concorde and the Champs Elysées.

Forthcoming Events.

Friday, June 23.—Manchester Housing and Health Exhibition at City Hall, Manchester (June 23-July 5).

Saturday, June 24.—Architectural Association. Visit to Rushymeade, Coleshill, Amersham, Bucks (Messrs. A. Dunbar Smith and the late Cecil C. Brewer, architects).

Monday, June 26.—Royal Institute of British Architects. Meeting at 9 Conduit Street, W. Presentation of the Royal Gold Medal. 8.30 p.m.

Tuesday, June 27.—Institution of Civil Engineers. Annual Conversazione at the Institution, Great Smith Street, Westminster. 8.30 p.m.

Thursday, June 29.—London Society. Dinner at the Hotel Victoria, Northumberland Avenue, W.C. 7.45 p.m.

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The Rise of Informality.

THE DECAY OF FORMAL ARCHITECTURE.

"Formality" and "formal" are not commonly used in praise of architecture except by architects and some art-critics, and it is unfortunate that the words have acquired (outside this technical use) a certain depreciatory sense. In Murray's Dictionary, for instance, "formal," in one of its senses, is defined as "marked by extreme or excessive regularity or symmetry, stiff or rigid in design, wanting in ease of outline or arrangement." "Dull and formal" are used by some people as if they were synonymous. Yet formality, the very basis of design, is nothing but the expression of lucid order. "Everything in architecture which can hold and interest the intellect; every delight that is complex and sustained; every subtlety of rhythm and grandeur of conception, is built upon formality. Without formality architecture lacks the syntax of speech. By means of it architecture attains, as music attains, to a like rank with thought.[1] It is the quality praised by Bacon and by Wren as "uniformity," and which is older than the Pyramids. What is significant is that this quality of formality, or uniformity, or regularity in architecture was questioned for the first time in history, and pretty generally repudiated during the course of the nineteenth century in England.

It is worth while considering the causes of this attitude of revolt.

The English architects of the eighteenth century looked to Rome, or Roman architecture seen through the medium of the Italian Renaissance. The influence of the Græco-Roman school which succeeded, interlocks with the succeeding phase which was firmly established in 1820, the outcome of archæological researches confined almost entirely to Greece. The chief adherents in England were Gandy-Deering, Sir Robert Smirke, Decimus Burton, the Inwoods, and William Wilkins—an architect who, anxious to establish the predominance of Greek Doric, derived it from the first Temple of Jerusalem, which he restored on paper as a Doric temple. About the year 1830, a modified style of design, since known as the neo-Grec, was introduced by way of France, where the architects Duc, Duban and Labrouste were its leading spirits.

But after 1840 the last impetus from classical architecture was fast disappearing. The causes for this were threefold, the hurrying commercial progress of the nineteenth century, a revolt against some of the excesses of the Greek and neo-Grec phase, and the counter attractions of the Gothic revival.

The nineteenth century began an era of change in the wealth, communications, and mode of life of the whole country. Communities which had lived remote from the greater centres of activity, content in their seclusion, suddenly found themselves caught in the broad stream of modern developments, and their uneventful existence rudely invaded. Home industries were transplanted to factories, and the craftsman had to give way to the mechanic. It was exciting, but it did not make for the sober further development of traditional architecture. It is not easy to say exactly how great the increase of population was, but while in England in 1760 it was probably less than seven millions, in 1821 it had risen to just over twelve million, and many towns had developed with amazing rapidity. A population of eighteen millions in 1840 had reached nearly twenty-three millions in 1871. The most salient feature between about 1840 and 1865 was the emergence of the middle-class into a political consciousness after the Reform Bill. And while in England there were hurried increases in wealth and man power, there was a reaction in France against the influence of the *philosophes* and classical art. A Catholic reaction followed, accompanied by a restatement of the classics of Christianity by writers like Joseph de Maistre, Chateaubriand, and Lammenais, and a collection of monuments of mediæval and Renaissance times, piously collected by Lenoir at the Petits Augustins, was a revelation of the earlier national art. While there was a monarchic reaction on the Continent, there was also a revival of interest in romantic history, and Ossian, Byron, and Sir Walter Scott became continental influences. In France, the classicism of the Empire was too much bound up with Revolutionary and anti-Catholic or with Imperialistic ideas to be palatable to the restored monarchy; and in England, though the Empire modes had not so deep a significance, the influence of France was not without its effect on the new criticism of classic architecture. Viollet-le-Duc was an authority on both sides of the Channel.

There had emerged in England a new class of client at a time when the Greek and neo-Grec manner was no longer a novelty, and was criticised as dull and insipid by the romantics, and as inconvenient by the practical man. A writer in 1826 spoke thus with misgiving of a villa treated as a Doric temple: "The basement was formed into a magnificent pedestal for the portico; and the attic storey and its roof were concealed behind the massive entablature. It is a question how far these cumbrous proportions and that Doric severity, which, according to Vitruvius, were reserved to the Major Deities, are applicable to the purposes of villa architecture." Against this was to be set the counter-attractions presented by what stands for the "romantic school" in architecture, the Gothic revival. It was very closely allied to the romantic school in literature in its reaction to mediæval and national influences. The revivalists made an ethical question of plaster and compo; and Nash's plaster architecture suggested the more lifeless formalities of academic literature. Mediæval Gothic, again, stood for Christianity, while the classic was discredited as the temple of the Goddess of Reason, or the "Etre Suprême." As Kerr writes, they thought mediæval forms were "truthful, graceful, picturesque, and vigorous, essentially national also, some would add (although this is not clear), and essentially Christian, others will suggest, which is absurd."[2]

Among all the other fashions, such as neo-French, Italian and Spanish Gothic, German and Flemish revivals and other caprices, this revival of English Gothic in the nineteenth century is worth considering in some detail, because it was this which made a serious breach with the classic tradition. Gothic, it is true, had been revived in the eighteenth century, but without deflecting the stream of classical tradition. It was largely an affair of amateurs; of Horace Walpole[3] and his friends, Saunderson Miller of Radway, Barrett of Belhus. Now and then an architect like William Kent, Sir William Chambers, or Robert Adam experimented in Gothic at the wish of a client, but the experiment lay apart from the architect's life-work, as an occasional and romantic excursion; and the few houses Gothicised—Belhus, Rousham, Tissington, and so on—did not affect the country builder. Of Gothic construction nothing was known, and Beckford's Fonthill, built in 1796, an "abbey" of cruciform plan, with a tall octagonal tower springing from the centre, combining in the words of a contemporary "all that is awful in the Cathedral, all that is magnificent in the modern style of architecture," fell to pieces, and the stones were dispersed like the Fonthill collections.

But the nineteenth-century revival of Gothic, though hardly more scholarly, made a wider appeal. It was backed by the influence of Sir Walter Scott, who drew attention to the romantic side of archæology. It would be difficult to overrate the influence of Scott's poetry and

[1] Geoffrey Scott, "The Architecture of Humanism."

[2] "The English Gentleman's House," p. 369.

[3] Horace Walpole bought Strawberry Hill in 1747 and set himself to remodel it from that date onwards. In 1750 he wrote to Mann that he was "going to build a little Gothic castle at Strawberry Hill." Mann expostulated at the use of Gothic, and Walpole, in his answer, showed that he was only in favour of "the Grecian" for "magnificent and public buildings." "Columns and all their beautiful ornaments look ridiculous when crowded into a closet or a cheese-cake house. The variety is little, and admits no charming irregularities."

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prose, on both sides of the Tweed, in fostering the taste for mediæval architecture. The public had been to some extent prepared for this new interest by the works of Britton and Rickman, but the romantic school in literature and the Anglo-Catholic movement (which must itself be considered as part of the romantic movement in literature), were more influential as agents. In the early period of this revival, the buildings produced were mainly ecclesiastical, but the younger Pugin carried his principles into domestic building. The first revivalists attempted to recreate 1280-1320 Gothic, then "the dream of beauty and romance of the fourteenth century was gone, might not the more work-a-day Perpendicular give us a chance for the housing of Mr. Podsnap's respectability and country house and bosom-of-the-family, and Sunday worship, without too manifold an absurdity?" So the architects began on the fifteenth-century forms; but still the living style would not come; it is all hung in the air, so to say."[4] Meantime from the fifteenth century we came by a natural process to imitating something later yet. After Pugin's death in 1852, Sir Gilbert Scott became the central figure of the arena until 1879, the year of his death; and with the death of Street, and Burgess in 1881, the polemical energetic phase of the revival came to an end.

After the death of C. R. Cockerell in 1863, the revived and free Gothic gained an ascendancy in the public mind. In the second half of the century men like Nesfield, Philip Webb, Devey, and Norman Shaw picked up the thread of traditional design arbitrarily and gave a personal idiosyncrasy to his designs, so that there were considerable variations in each of their readings of Gothic.

None of these revivalists wished to reproduce an old Gothic house literally for their clients; they offered them something new, some modification of Gothic touched with foreign influences, including all modern comforts, even plate-glass.[5] Scott in his "Remarks on Secular and Domestic Architecture," puts the case very clearly. "We wish," he wrote, "to revive the artistic style of our indigenous architecture, applying it freely, and subject to the rules of common sense, to our requirements, and that in doing so we are at liberty, within the reasonable limits of the style, to adhere as closely to mediæval feeling, or to bend it as much to the feelings of our day, as the individual taste and judgment may dictate."[6] The reasonable limits of the style were more than once painfully stretched, and "bits" of foreign Gothic from the architects' sketches were oddly grafted on to the English house. Champneys's St. Luke's Parsonage, Kentish Town (1868-9), is described as "old English," but "the style is of mixed character, being Gothic in general grouping and some details, while certain features, such as the sash windows, belong to the Queen Anne period."[7] In Eden Nesfield's additions to Combe Abbey there is a jarring blend of French and English Gothic; his Cleverley Hall (1864) is Elizabethan, with a French accent in its dormers. The "indigenous style of architecture" was improved out of all knowledge by the most picturesque details of the architect's note-book.[8] Ruskin was for definitely settling a style—Pisan Romanesque—early Florentine, Venetian Gothic or the earliest English Decorated, which must be well fenced from deviating into Perpendicular, and might be revived by the introduction of a French element. Eastlake, the admiring historian of the movement, has to invent some strange labels for the homes built between 1825 and 1870.

Whatever the architect's prescription, Venetian Gothic or Anglo-Irish Geometrical, "all thought that there was something wrong with the classical house with its solid and blameless air, both the little "brick box and slate lid,"[9] and what William Morris called "the stone lumps of the Georgian period." What was missing, they decided, was the picturesque, or in other words, "romance." They had found romance themselves when they had sketched patched-about ruins which were the long result of time. The haphazard mixture of many styles, brought into unison by the action of time, may well result in a group for Turner, not only romantic, but historically satisfying. We see how the building has come to be what it is, and how it could not be otherwise. But to copy them, to sit down and contrive a factitious admixture of periods, a deliberate asymmetry that should appeal to a passion for the past is as absurd as Beckford's order to Wyatt, to build him "a convent, partly in ruins and partly perfect. The chapel, the parlour, the dormitory, and one small cloister appeared to have survived the period which had buried the refectory, the kitchen, and every other part of the edifice in one common ruin."[10] It would hardly be believed that this architect's note-book method would have outlasted the nineteenth century, but yet in a recent book, the "English Home," we are told that: "The exteriors of some of the old farmhouses which are fast disappearing possess those attractive qualities of repose and simplicity which have provided motifs for many of the best modern homes. An architect's best preparation for this class of design is the sketching and measuring of old farm houses in and about English villages, where gradual growth has brought about effective grouping."[11] It is amazing how this aim of romance intrudes even into the practical details of the plan. We are told by the writer that the "dwelling hall," on the modern house plan, is "hallowed by the romance of the old farm and manor house,"[12] and that the absurd vogue of the "inglenook" is not due "solely or even chiefly to its design or to its comfort. Had we not known the quaint charm of the cottage and farmhouse ingle, "it is probable that we should not derive quite the same pleasure from our fireside." It is the ingle's old-world association, not its shape, that gives it the quaintness we prize so highly."[13] This literary bias, which we may call the picturesque fallacy, has had the most profound and damaging effect upon the design of English country houses. It is peculiar to England to-day, and is frankly criticised in America. An American writer,[14] looking over a collection of modern designs based upon the haphazard grouping of farmhouses, considers them as "mere scenic efforts." "It is not," he writes, "until we discover that such houses have been built with no regard to economy and are not the homes of the poor, who are forced by circumstances to live the simple life, nor the homes of those who live that kind of life by choice, but are mere scenic efforts, the affected imitations of a row of fishermen's hovels, done on a grand scale and at a great expense, sometimes to the extent of a large country house, that we begin to wonder."

The dear and direct road to the picturesque was, to all the Gothic revivalists, asymmetry—a revolt against symmetry both in elevation and plan. They held, apparently, that no symmetrical building was truly picturesque.

Ruskin finds that "the love of largeness, and especially

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[4] William Morris, "Architecture, Industry, and Wealth," 1902, p. 202.

[5] "It seems to me that if we condemn the old system of diamonds . . . as inconsistent with the spirit of our age and our praiseworthy desire to see clearly out of our windows, we ought, in good houses, to go at once to the opposite extreme of plate-glass, as undivided as possible. It is one of the most useful and beautiful inventions of our day."—G. G. Scott, "Remarks on Secular and Domestic Architecture," 1857, p. 35.

[6] *Ibid.*, p. 53.

[7] Eastlake, "The Gothic Revival," p. 423.

[8] An instance of the absurd eclecticism of the time is Ruskin's recommendations. He thought that the national architecture should be definitely settled for adoption and universally practised. "The choice of a style be limited to four types: Pisan Romanesque, Florentine of Giotto's time, Venetian Gothic, and the earliest English Decorated. Of these he considered that the last would, on the whole, be the safest to choose, but it was to be well fenced from the chance of degenerating into Perpendicular and might be enriched by the introduction of a French element." *Ibid.*, p. 272-3.

[9] W. Morris, "Architecture, Industry, and Wealth," 1902, p. 210.

[10] Rutter, "Delineations of Fonthill and its Abbey," 1823.

[11] *Ibid.*, p. 58.

[12] W. A. Bidlake, "The Modern Home," 1906, p. 25.

[13] *Ibid.*, p. 24-5.

[14] The "Architectural Record," Vol. XXV., 1909, p. 43.

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of symmetry, invariably associated with vulgarity and narrowness of mind, so that the person[15] most intimately acquainted with the mind of the monarch to whom the Renaissance architecture owed its principal impulse, describing his taste in architecture, says that he thought of nothing but grandeur, magnificence, and symmetry." This was a serious breach with tradition. It is difficult to find a statement of the case for symmetry in the mouths of architects or general critics of the past, though it is true Fuller wrote, "Let not thy front look asquint on a stranger, but accost him right at his entrance; uniformity also much pleaseth the eye."

There was no alternative to symmetry in their conception of their art in the case of architects of the past. To them an asymmetrical building would have been a deformity and a disfigurement. There are, however, a few rough notes set down by Wren upon the principles of the art of building, which he defines as Beauty, Firmness, and Convenience. Under the head of Beauty he reflects that "the enemies of Beauty are departures from Uniformity."[16] Relief was to be sought in variety, but it must be "a variety of uniformities." To the Gothic revival, however, symmetry was a tyranny. Asymmetry, according to Sir Charles Eastlake, was one of the essential graces of mediæval architecture, in fresh and delightful contrast with the "grim proprieties" of the classic and pseudo-classic;[17] to Viollet-le-Duc—for the French also had their Gothic revival—a blind tyranny,[18] in which rational human requirements were sacrificed to appearances. The ablest of the Victorians, Sir Charles Barry, knew that "actually to plan irregularity, because it was picturesque" was unworthy of the dignity of art;[19] but the tendency was to follow in the steps of Norman Shaw rather than Barry. At the present day the architect seems to take a naïve pleasure in "doing what he likes." Perhaps the most amazing expression of this is to be found in the "Essentials of a Country House,"[20] by Mr. R. A. Briggs, where the author not only proposes to "take great liberties with the planning and spacing of windows, in what he calls the 'manorial style,' but adds that even with the Georgian style, if treated in a free way, we can also do almost what we like, but we are tied, to some extent, so that windows shall range with each other."[21] It used to be said that the recipe for designing a landscape garden was to make the gardener drunk; *enivrer le jardinier et suivez ses pas*, for a free treatment of any of the styles, it need only be necessary to "*enivrer l'architecte et suivez ses plans.*" The persistence of this advocacy of asymmetry is the more surprising when we find it criticised, and criticised intelligently and pungently by Robert Kerr, in his "English Gentleman's House."[22] He had grave doubts whether irregularity was permissible, even in Gothic plans. "In the ancient buildings," he writes, "although theoretically speaking, variety was a governing characteristic, yet practically there was almost always a disposition to obtain balance (which is the simplest form of agreeableness) by the simplest means—namely, symmetrical disposition. In other words, the authentic architecture of the period exhibits nothing like intentional irregularity; on the contrary, the intention always goes in favour of regularity, so far as it conveniently can, and sometimes farther. But in modern designs, especially at the passing moment, it is generally deemed desirable to produce a certain amount—frequently a very considerable amount—of positive intentional irregularity; . . . where a villa, as is frequently the case, has to be built in a flat field, with no means at command for artificial landscape, the design of it in anything like extreme picturesqueness makes it but a merry-andrew amongst the meadows. If Elizabethan style be dictated in such a case, let it at least be as quiet as the architect's fancy can permit. For it must not be disguised that intentional irregularity is, in the nature of the thing, eccentricity, and accordingly, when one starts on this track, it must be warily, for the slightest change of fashion converts the eccentric into the absurd."[23]

The decline of the Palladian school did not, however, leave the Gothic revivalists in entire possession of the field. A rural Italian[24] style was introduced and described as the direct descendant of the Palladian,[25] but the "Palladian revised, nationalised, simplified, reduced to common-sense everyday wants and so reaccepted."[26] It was Palladian architecture with a "go-as-you-please" plan. The phase has left little trace to-day, but it was evidently designed as an alternative to the Gothic ideal. The Prince Consort, perhaps unable to make up his mind between two styles, had an Italian villa (Osborne) and a mediæval castle (Balmoral) built under his eyes, and these remain as characteristic of the period as the Albert Memorial.

As a result of the breaking-up of the traditional school of architecture into a number of schools, or mutually destructive sects, the position was that the client was faced with a choice of styles. The architect himself, says Kerr, "will generally put this query to his client at the outset of their intercourse: 'In what style of architecture shall you build your house?'" A question universal in these days in England if not elsewhere, although one which in other days would have been unmeaning.[27] Architectural styles were offered like samples, and the client was expected by the exercise of some instinct or some caprice to make his choice among half-a-dozen prevailing varieties. "Sir, you are the paymaster," says Kerr, "you choose the style of your house just as you choose the build of your hat; you can have Classical, columnar or non-columnar, arcuated or trabeated, rural or civil, or indeed palatial; you can have Elizabethan in equal variety; Renaissance ditto; or not to notice minor modes, mediæval in any one of many periods and many phases,[28] Old English, French, German, Belgian, Italian, and more"—a list as exhaustive as Polonius's catalogue of all possible varieties of drama, tragedy, comedy, history, pastoral, pastoral-comical, historical-pastoral, tragical-historical, scene individable, or poem unlimited. The client's difficulty is even more acute to-day. Many architects have cultivated a manner rather than a recognised architectural style. This hesitancy and rapid change of manner is the result of the amateurishness and lack of scholarship in English architectural training,[29] the wide gap in the English traditions of the revivals.

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[15] *Note* [by Ruskin].—Madame de Maintenon, quoted in the "Quarterly Review," March 1885, pp. 423-8. She says afterwards of Louis XIV.: "He prefers to endure all the draughts from the doors in order that they may be opposite one another—you must perish in symmetry."

[16] "The enemies of Beauty are departures from Uniformity. Where there is too little of it, Deformity results; where too much, Plainness." Relief is to be sought in variety, but it must be a variety of Uniformities if completed beauty is to be achieved, and "uniformities are best tempered as Rhymes in Poetry, alternately. In things to be seen at once, much variety makes confusion, another Vice of Beauty. In things that are not seen at once, and have no Respect one to another, great variety is commendable."

[17] "The Gothic Revival," p. 143.

[18] Viollet-le-Duc, "Lectures on Architecture" (trs. Bucknall), Vol I., 1877, p. 465.

[19] Rev. A. Barry, "Memoir of Sir Charles Barry," 1867, p. 60.

[20] "The Essentials of a Country House," 1911, p. 16-17. "We may take great liberties with the planning, and we are not so bound as to the spacing of the windows. We can jut out a room or a bay here and there, and we are not tied to having one bay or one window on the other side.

[21] An example of this architect's Free Georgian is given on Plate XIII. of his book. The porch is not in the middle of the front.

[22] Several editions of this work were published; the third (1871) I quote from.

[23] *Ibid.*, p. 352.

[24] Kerr also mentions the "Palatial Italian style," but this was rather the town-house variety. An example of it is Barry's Bridgewater House.

[25] "The English Gentleman's House," p. 355.

[26] *Ibid.*, p. 356.

[27] "The English Gentleman's House," p. 340.

[28] *Ibid.*, p. 341.

[29] *See Appendix* 2, the lack of scholarship in recent architecture.

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Studies of the English Sculptors from Pierce to Chantrey.*

XIV. Louis Francois Roubiliac (1695-1762)—(*continued*).

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MONUMENT TO BISHOP HOUGH IN WORCESTER CATHEDRAL. By Roubiliac.

We must now return to the sculptor's private life, and deal with the little that is known of it. He was rated at £45 for the poor rate in 1756, which looks as if he were past the stage of borrowing twenty pounds from Mr. Tyers. He was, moreover, a man of mark; no biographer appears to have noticed the fact that he was one of the Special Committee appointed by the Society of Painters to lay before the Society of Dilettanti their scheme for establishing "an Academy for the Improvement of the Arts in general," which was indeed abortive, but which influenced George III. and his advisers in the foundation of the Royal Academy. He was one of the earliest members of the Society of Arts, and, as already said, contributed to the first Exhibition of the Society of Artists which was organised by the former body. He was a member of the club to which Fielding and Hogarth belonged, that met at the Old Slaughter's Coffee-House; he knew Goldsmith intimately, and (if Sir John Hawkins is to be believed) scored off him neatly by disproving his boasted musical knowledge; and he was familiar enough with Dr. Johnson to visit him in Gough Square and request him to write an epitaph for a monument on which he was then engaged, his account of the dusty garret and dilapidated furniture, quoted by Birkbeck Hill, being the most vivid we possess. It is a matter for sincere regret that we cannot identify the monument in question, the sculptor's flowery speeches about which, omitted, oddly enough, by Birkbeck Hill, drew from the Doctor the rebuke, "Come, come, Sir, no more of this bombast. Let me know, in simple language, the name, character, and quality of the person whose epitaph you intend to have me write."

Whether Roubiliac played a trick on Goldsmith or not, the author bore the sculptor no ill-will. Few handsomer literary compliments have been paid than may be found in the 109th "Letter of the Citizen of the World": "Determined in my pursuit [of great men] I paid a second visit to Westminster Abbey. There I found several new monuments erected to the memory of several great men; the names of the great men I absolutely forget, but I well remember that Roubillac was the statuary who carved them. . . . Alas! alas! cried I, such monuments as these confer honour, not upon the great men, but upon little Roubillac."

"Little Roubiliac" he certainly was, and if Vertue had known him at the time, he would have added Roubiliac's name to his list of great men of small stature quoted in a previous chapter. Moreover, if Goldsmith ever heard the story which ran round Old Slaughter's of the adventures of one of its members, he, for once, might have felt himself worldly-wise in comparison with the sculptor. Sitting late one night over the whist-table, Roubiliac, on hearing that a friend had forgotten his latch-key, invited him home for the night, showed him to a room, and was recalled by wild shouts from his guest. Running in, the host found him, half-undressed, gazing with horror at the bed. "Oh dear, my good fren, I beg your pardon'. I did not remember poor Mary was dare: poor Mary! she die yesterday vid de small-pox! Come, come, and you must take part vid my bed—come—poor Mary was my hos-maid for five six year—more." He was equally absent-minded in society. One day, walking near Bowood, he met Lord Shelburne who, though a total stranger, asked him to dinner. Jumping up from table, he fell into raptures over the bust of a Roman empress placed over a side table: "What an air! What a pretty mouth! What a *tout ensemble*!" Returning to his seat he forgot to eat, and burst out into fresh fits of admiration which so terrified the company that one after another left the table, leaving Lord Shelburne almost alone with him. "Pray, Sir, may I ask your name?" said the perplexed Earl. "My name is Roubiliac." "I beg your pardon, Sir. I now feel that I should have known you," and going out Lord Shelburne recalled his guests with the words, "Ladies and gentlemen, you may come back; this is no absolute madman; this is Mr. Roubiliac, the greatest statuary of his day, and only occasionally mad in the admiration of his art." On another occasion, the sculptor cried out to his host's daughter, "Miss Rich, I vil have your ear," and model it he did, as Smith heard nearly forty years later from the lady herself, at whose table he happened to mention that Roubiliac was looking for a handsome ear to give Handel on his monument, since that composer "had so fine an ear for music." This story curiously fits in with Roubiliac's earlier idealism in selecting the legs of a chairman and the arms of a waterman for the Hercules of the Warren monument, quite in the spirit of the composite Helen of Zeuxis. So, too, he one day acted at table the part of Mr. Nightingale, trying to ward off the dart of death from his wife, "throwing his features into the strongest possible expression of fear"; and Gayfere the Abbey mason would often tell how the sculptor, while nominally supervising the erection of the Warren monument, would be

* For preceding articles in this series see:—Introductory Article, July 1; Nicholas Stone (1587-1647), July 8; Edward Pierce (ob. 1698), Sept. 2; Caius Gabriel Cibber (1630-1700), Sept. 16; Grinling Gibbons (1648-1721), Sept. 30; John Bushnell (d. 1701), Oct. 7; Francis Bird (1667-1731), Oct. 21; Peter Scheemaker (1690-1771?), Dec. 9; Peter Scheemaker (*cont.*), Feb. 10; John Michael Rysbrack (1693-1770), Mar. 3; John Michael Rysbrack (*cont.*), April 7; Louis Francois Roubiliac (1695-1762), April 21; Louis Francois Roubiliac (*cont.*), June 16.

[1] Tom Moore tells us that he saw at Sir Robert Peel's the bust of Pope, of which Rogers had the cast (? the original model), "remarkable for the fine lines and markings with which it abounds, afterwards softened down or omitted in the marble." A copy by E. H. Bailey, R.A., is in the National Portrait Gallery.

[2] "The Model in Clay baked of Mr. Handel done by Mr. Roubillac—the same from which the Statue in Foxhall Gardens was done as big as the life—in Marble by Mr. Rubillac an excellent Statue—this Model near 2 foot high is in posses of Mr. Hudson painter."—*Vertue.*

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constantly lost in admiration of the Norris monument. On one occasion Smith's father, then Roubiliac's assistant, took him an important message, and after three times delivering it in vain was pinched by the sculptor, who exclaimed, "Hush, hush, he vill speak presently!"

Such was "little Roubiliac," warm-hearted, impulsive, out-spoken in his admiration, who, when he went to the City to get money, always went out of his way to admire Cibber's Melancholy and Raving Madness at Bedlam; who was at home with Garrick and Johnson, Fielding and Hogarth; who replaced Shakespeare's head at his own expense because the original marble turned out to have blue veins, and Garrick protested against the poet being "marked with mulberries"; who, in a less generous frame of mind, agreed with Dr. Askew for fifty pounds for the bust of Dr. Mead (No. 50 *supra*), received a hundred pounds because it was "so highly finished," and sent in a bill for £8 10s. more (Nicholas, "Lit. Anec.," V., p. 321), which bust was described by one of Mead's friends as "so like, that, as often as I see it, my mind is filled with the strongest idea of the original." Wilton carved his bust, the mask of which was sold at the younger sculptor's sale; Andrea Soldi painted the noble portrait of him now at Dulwich; his friend and fellow-sculptor, Adrien Carpentier, painted another in 1761, now in the National Portrait Gallery, which was engraved by David Martin in 1765, showing him at work upon his Shakespeare, with the look and fire of genius.

The stories of Roubiliac here given are derived from two main sources, J. T. Smith, whose father Nathaniel "was placed with L. F. Roubiliac" on August 7, 1755, and Reynolds, who in his conversations with Northcote told the irascible old painter many stories of the sculptor. Cunningham's evidence is also important, and much studio gossip may be found in W. H. Pyne's farrago "Wine and Walnuts," in which the sculptor appears as protagonist in various conversations of the Hogarthian circle, and is addressed by Fielding as "Ruby"; but in Horace Walpole's Letters he plays no part at all, although that collector liked the Hough monument and had an ardent admiration for the only work of his he possessed, the bust of Colley Cibber. But Walpole, in the "Anecdotes," is responsible for a mis-statement which has caused much confusion. He tells us, as we have seen, that Sir Edward Walpole recommended Roubiliac "for half the busts in Trinity College, Dublin," and until the appearance of Mr. Strickland's official catalogue in 1916, fifteen of the busts in that celebrated library had always been ascribed to Roubiliac. But what are the facts? Six of those busts are by Scheemaker, four by Van Nost, and the others, if signed, are in such a position that the signatures are invisible; the Swift is the only work by Roubiliac. It seems probable that Walpole, knowing that Roubiliac had got many commissions through Sir Edward, had executed the famous Swift at Dublin, and a yet more famous series in the Library, Trinity College, Cambridge, confused the facts and ascribed to the sculptor a second series at the Irish Trinity College comparable to those at Cambridge, which, oddly enough, he does not mention.

For completeness' sake we must also mention that only Roubiliac among our sculptors has attained the honour of an imaginary statue. We all know the novelist's property Vandycks and Cellinis, but it took a Trinity man who had lived under the shadow of the Newton to create a Roubiliac. "In the comfortable old wainscoted College Hall," we read in the seventeenth chapter of "Pendennis," "and round about Roubiliac's statue of Saint Boniface (who stands in an attitude of seraphic benediction over the uncommonly good cheer of the Fellows' table), there are portraits of many most eminent Bonifacians." Literature has taken so little notice of our English sculptors that Thackeray's tribute cannot pass unnoticed.

How, it may be asked, has Roubiliac stood the test of time? In what rank is posterity likely to place him?

Coming as he did at the end of an epoch, contemporaries like Shelburne, Chesterfield, and Bridgen admired the sculptor without stint; but the next generation, full of admiration for the works of the classical revival, was distinctly critical. Daniel Wray, F.S.A. (ob. 1783), wrote: "*Violent attitudes* do not suit the dignified but graceful simplicity of Sculpture. Those in the modern art (and *French*) most who have aimed at the *pittoresc* have not succeeded. *Roubiliac* runs into this fault sometimes. The Ancients, Heaven bless them! had nothing of it." (Yet Wray's generation adored the Laocoon.) Prince Hoare, in his "Arts of Design," merely dismisses him with Rysbrack and others as leaving behind "works of ingenious labour, of which some may justly be considered ornamental to our country, but it was not to be expected that the Arts should rise to the highest honours during the *exclusive* employment of foreigners, or that they should be directed to exalted uses by men who had no other interest in their success than as they procured the passing favour of employers in a strange land." Dallaway condemned "the want of simplicity, and a certain French air, in all the works of this artist," while a French critic has described his work in England as that of a reformer, who substituted the true antique taste for the English habit of severely copying from Nature ("Biographie Universelle," Vol. XXXVI., p. 580). Flaxman detested him, as we have seen. A slightly more judicial attitude is adopted in Vol. IV. of Arnold's "Library of the Fine Arts" (1832), where we read of the "flutter, affectation, and excessive attention to detail in Roubiliac's celebrated statue of Shakespeare;" but, the writer continues, "do not let us be supposed to underrate Roubiliac; he was a sculptor of great individual ability; his defects were those of his national character."

Of Vertue's admiration for his work—and no better judge existed in his day—we have already seen some specimens; one more may be quoted, for completeness' sake, from the notebook of 1752 so often cited: "His Modells of Statues Monuments busto's [are] very curious and Excellent with great skill and variety, his inventions very copious—and free—picturesque—so light and easy—as painting . . . his Models of portraits—very strong likeness." Three years before (August 1749) Vertue had noted the excellence of the bust of Martin Folkes, "a most exact likeness of him—his features strong and musculous, with a natural and Just air of likeness as much as any work of this kind ever seen." But this note of picturesqueness, of grace, of variety, did not suit a critic trained on the tamer and more conventional diet of the art of 1760 to 1830. Alan Cunningham had the great advantages of being Chantrey's pupil, that sculptor being a warm admirer of Roubiliac, and of being in touch with "much traditional matter concerning Roubiliac still hanging about our London studios," but, though he professes caution, he is often inexact and rarely appreciative. We owe him a debt of gratitude, however, for preserving the tradition already quoted about the Englishman who saw his works in Lyons and remembered him later when the question of a monument came up; but he knew of nothing earlier than the Handel; he is grotesquely unappreciative of the Warkton monuments, which he places at Boughton, the Duke's seat close by; he accepts the ascription of the George I. and Duke of Somerset to Roubiliac, and his authorship of the four busts of the poets presented to Pope; he ascribes the scene of "Hush, he vill speak soon" to the Vere monument instead of the Norris, and places its date to the credit of the Nightingale monument, not the Warren; and he pads his pages with much irrelevant matter. On the other hand, he does justice to the Nightingale monument, to the Eloquence, to the Newton, and to the Trinity busts, which his master Chantrey worthily praised, and he calls Flaxman's criticisms "unworthy of his natural kindness and candour." And if Cunningham had the bad taste to think his works "outdone by the productions of Flaxman and Chantrey," he records the interesting fact that Roubiliac owed his death to his habit of labouring with his chisel late in

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MONUMENT TO MRS. NIGHTINGALE IN WESTMINSTER ABBEY. By Roubiliac.

the evenings, "after all his workmen had retired," and also records that he was "intimately acquainted with the works of the best French poets." One can only regret that he quotes only one of "his own short poems in that tongue," which, he says, "are still remembered." That one is an appeal to the connoisseur to look with candour on the first exhibition of the Society of Artists, which appeared in the "St. James's Chronicle" for March 27, 1761, and, as Mr. Gosse has ingeniously suggested, the last lines—

"Il ne faut pas qu'un Mecénas
Pour revoir le siècle d'Auguste,"

are probably a reference to the hopes entertained of the new monarch, who, in accordance with the Leicester House tradition, was known to desire to patronise men of art and letters, in striking contrast to his grandfather, whose dislike of "Boetry and Bainting" is too well known for his own fame.

In general it may be said that Roubiliac has suffered from the criticism passed solely upon his most accessible works, those in Westminster Abbey, which are by no means his best; except for the Nightingale, indeed, they may be described as second rate, though the Eloquence is a fine figure, and the Navigation a finer. It is at Quainton, at Gayhurst, at Warkton, at Southwick, that that we see his statelier monuments at their best, while his noblest single figures are the Newton, the Molyneux, and the Duncan Forbes, and in a different genre, the Religion at Gopsall, and on Hough's monument.

Of the merit of the busts enough has been said to show that, while they are masterpieces, they should not be considered apart from the even more wonderful models, of which so many happily survive. Of the medallion portraits the Bolingbroke at Battersea and his charming French second wife, and the ill-lighted but most attractive Elizabeth Smith in St. Botolph's, Aldersgate, deserve close study, although the sculptor's notorious dislike of wigs makes his bald or nightcapped male portraits occasionally unattractive. But if the critics have been unkind to him, his contemporaries were not. One memorable thing about the sculptor is that in all the gossip which survives there is no unkindly word. Everyone seems to have liked the fussy little man, with his eagerness, his broken English, and his outspoken admiration for fine things, whether fashionable or not. Of the old friends, Fielding, indeed, was dead, but Roubiliac was followed to his untimely grave in St. Martin's churchyard by Hogarth, Reynolds, Wilton, Hayman, Moser, Tyler, Sandby, Meyer and Hudson, as well as by his pupils John Atkins, Nicholas Read, and Nathaniel Smith.* The sale of his works, which took place exactly five months after his death on June 11, 1762, and of which we only know through J. T. Smith, brought in very little, and the sculptor's creditors only got 1s. 6d. in the pound. His own portrait by himself brought 3s. 6d., and Reynold's copy of the Chandos Shakespeare, a gift from the painter to the sculptor, fetched only 10s. with seven other pictures. The purchaser, the elder Flaxman, immediately re-sold the Shakespeare for three guineas, and it subsequently passed into the possession of Malone, to whom Reynolds confirmed its authenticity.

Of his pupils we have already mentioned Atkins, Read, and Nathaniel Smith, a cryptic passage in Add. Mss. 23,074, mentions another: "Siste, who came from Denmark—and had been "in" some years—and Holland—but first in England— and lately is returned to England again—now constantly works for Mr. Rubilliac." Again this entry is written: "Bust done 1750 Micheling," the bust in question being apparently one of Vertue himself. Whether Siste or Micheling is identical with "a young man, an apprentice to Mr. Rubbillac Statuary," whose drawing of "an accademy figure shows great skill and fire and spirit extraordinary" must remain doubtful.

Either to Roubiliac or to one of these pupils must probably be ascribed the admirable medallion portraits of Tobias Wall (ob. 1744) and his wife (ob. 1739) in St. Olave's, Hart Street, the exquisitely wrought wings of the death's head cherub, that uncomfortable invention of the period, bearing up the monument is, like the portraits themselves, wholly in his manner—that is to say, its fineness of treatment and accuracy of portraiture in the very commonplace form of a mural tablet are worthy of the most accomplished sculptor of an age in which, as Vertue notes, the works of Roubiliac were "equal to such done abroad anywhere," to the honour of England and the advancement of her artistic reputation.

We may conclude with Roubiliac's method of carving drapery, as recorded by Smith, and a few words of appreciation. "He seldom modelled his drapery for his monumental figures, but carved it from the linen itself, which he dipped into warm starch-water, so that when he had pleased himself he left it to cool and dry, and then proceeded with the marble; this my father assured me he did with all the drapery on the Nightingale's monument." Cunningham certainly covered a multitude of critical sins when he wrote, in words recalling those of Dr. Johnson on Addison: "Those who are desirous of eminence in the difficult art of working marble till it looks like human flesh and raiment would do well to study the heads and draperies of Roubiliac." This is profoundly true. Roubiliac was not only the most accomplished, but the most original artist of his age; and in the jovial frequenter of Old Slaughter's Coffee-house, in the absent-minded enthusiast who was for ever losing himself in his art and who owed his death to that enthusiasm, we, who have outgrown the classical prejudices of Flaxman and the Gothic narrowness of Ruskin, should surely recognise the greatest imaginative sculptor this country has seen, and be proud to lay claim to Roubiliac as we do to Handel, as an Englishman by adoption and by love.

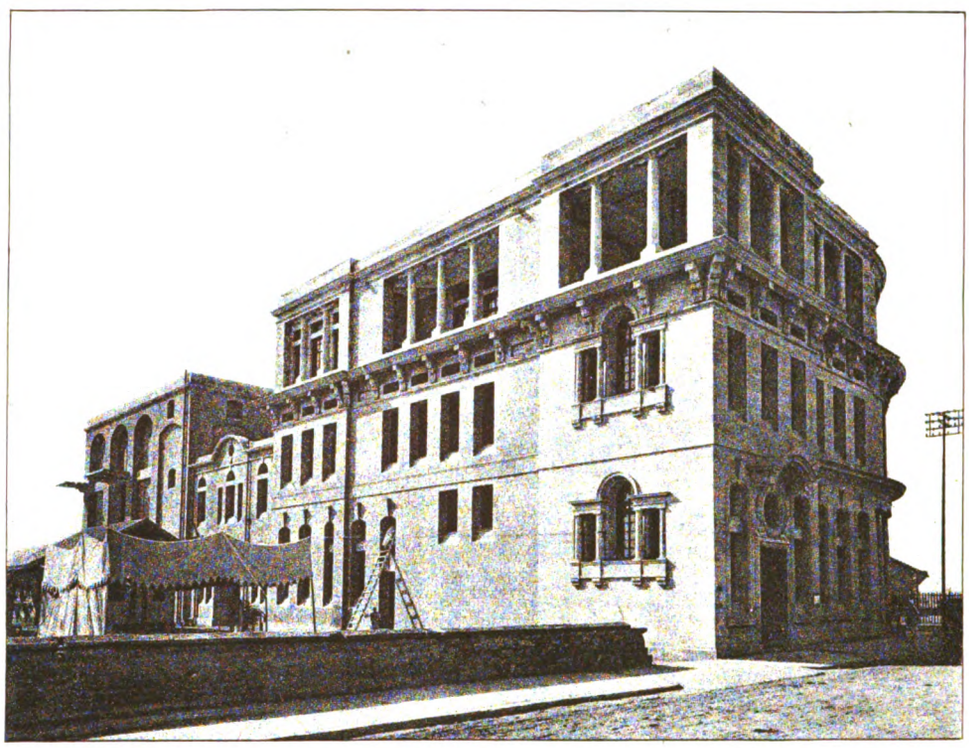
(*To be continued.*)

* I know of only one work by Atkins, though others doubtless exist, a monument to Zechariah Foxall (ob. 1758) in St. Botolph's, Aldersgate, the medallion portrait on which is so like the work of his master that, till I found the signature, I took it to be an undoubted Roubiliac.

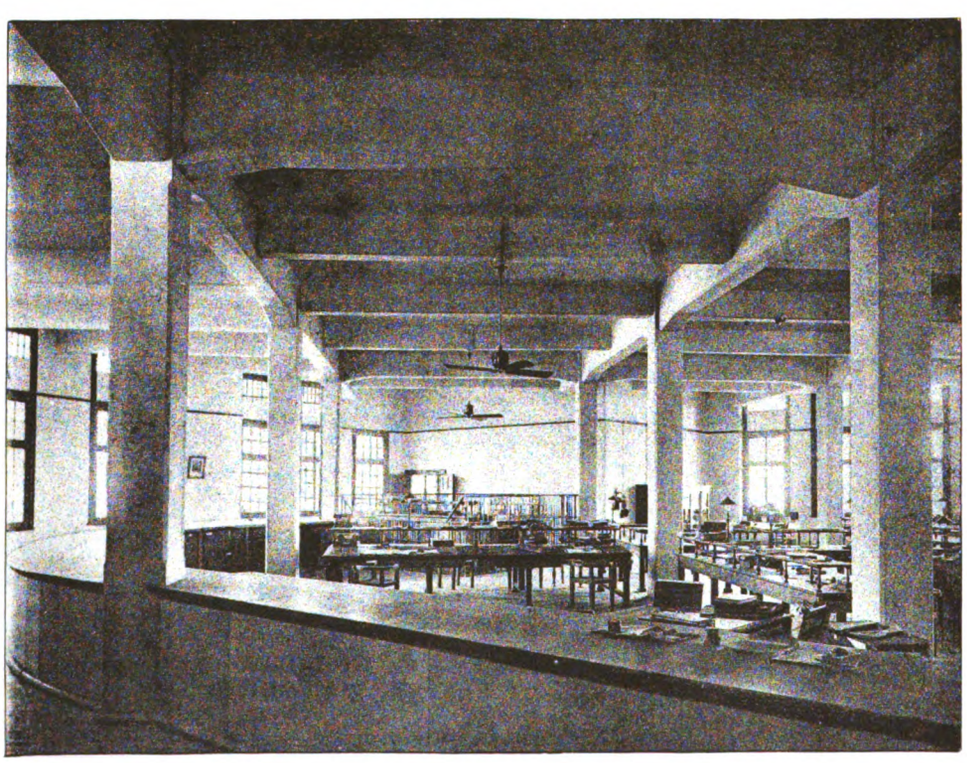
Read is a more important person than Atkins, and will receive a paragraph or two later on. His great work, very bad as a whole, but exquisite in details, is the monument of Admiral Tyrrell in Westminster Abbey.

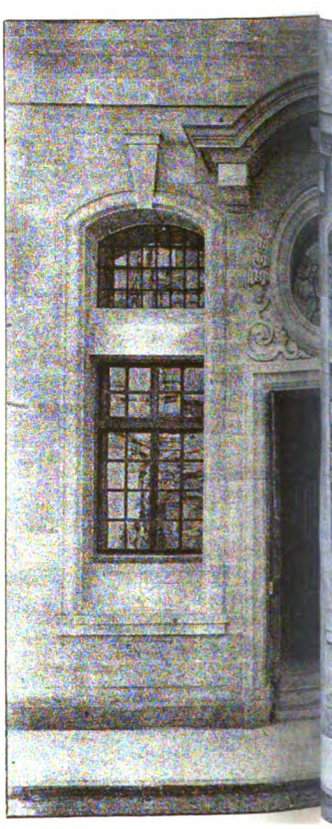
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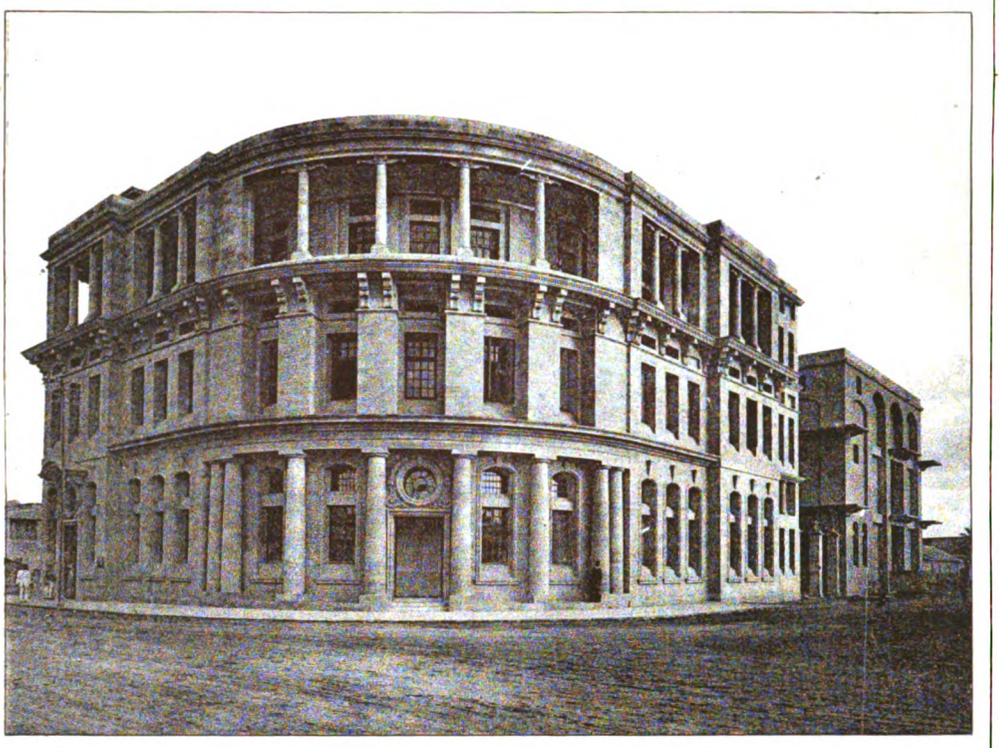


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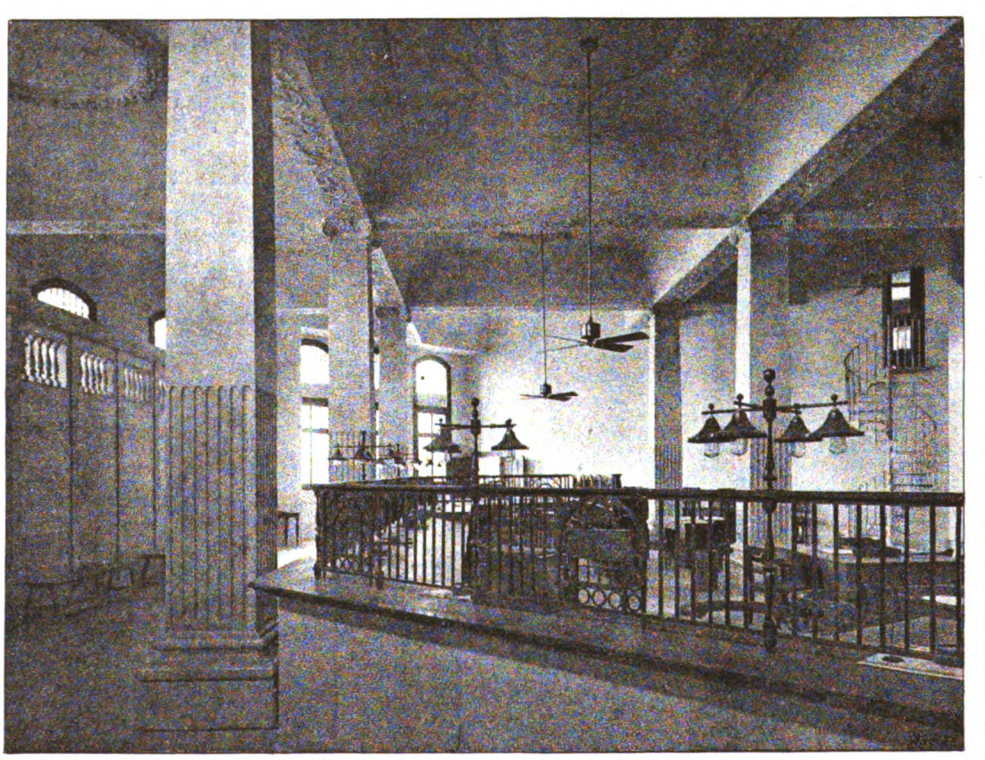
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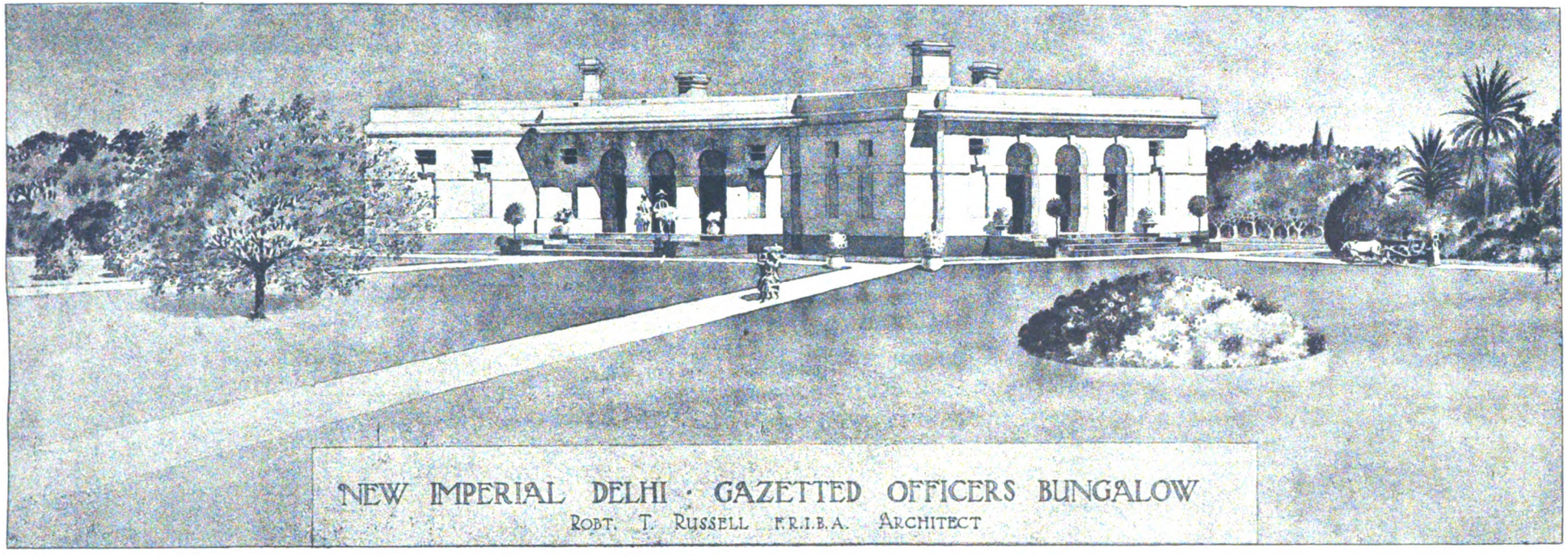
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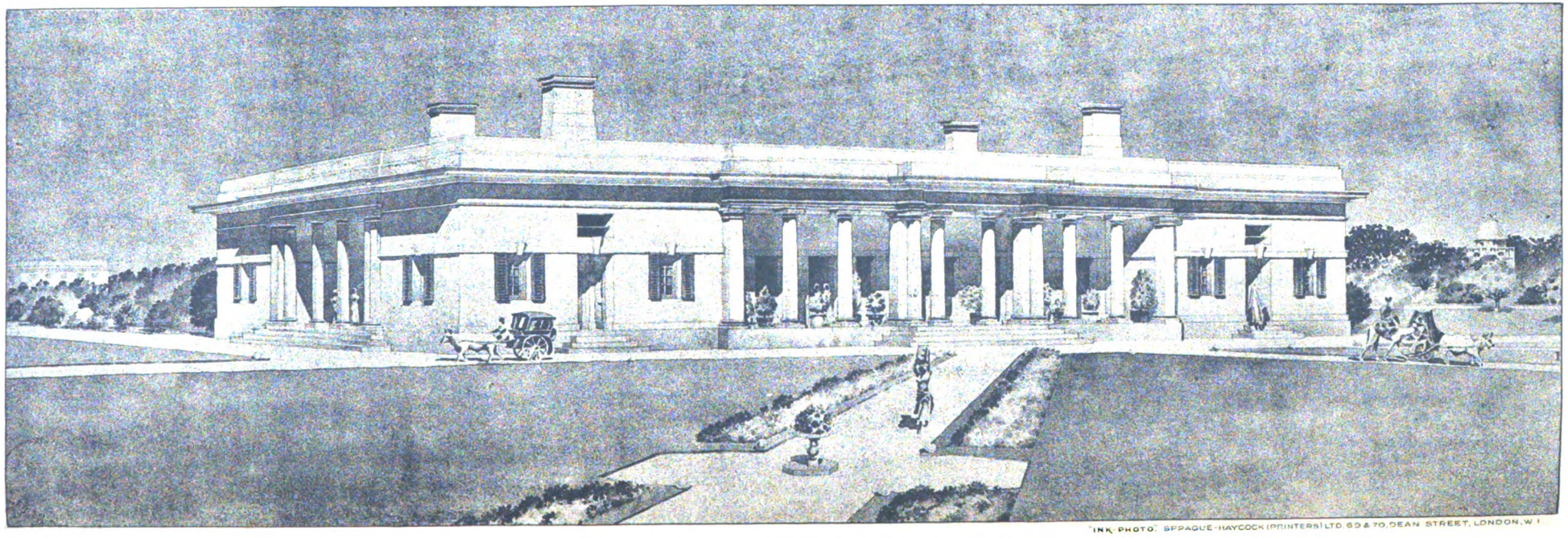
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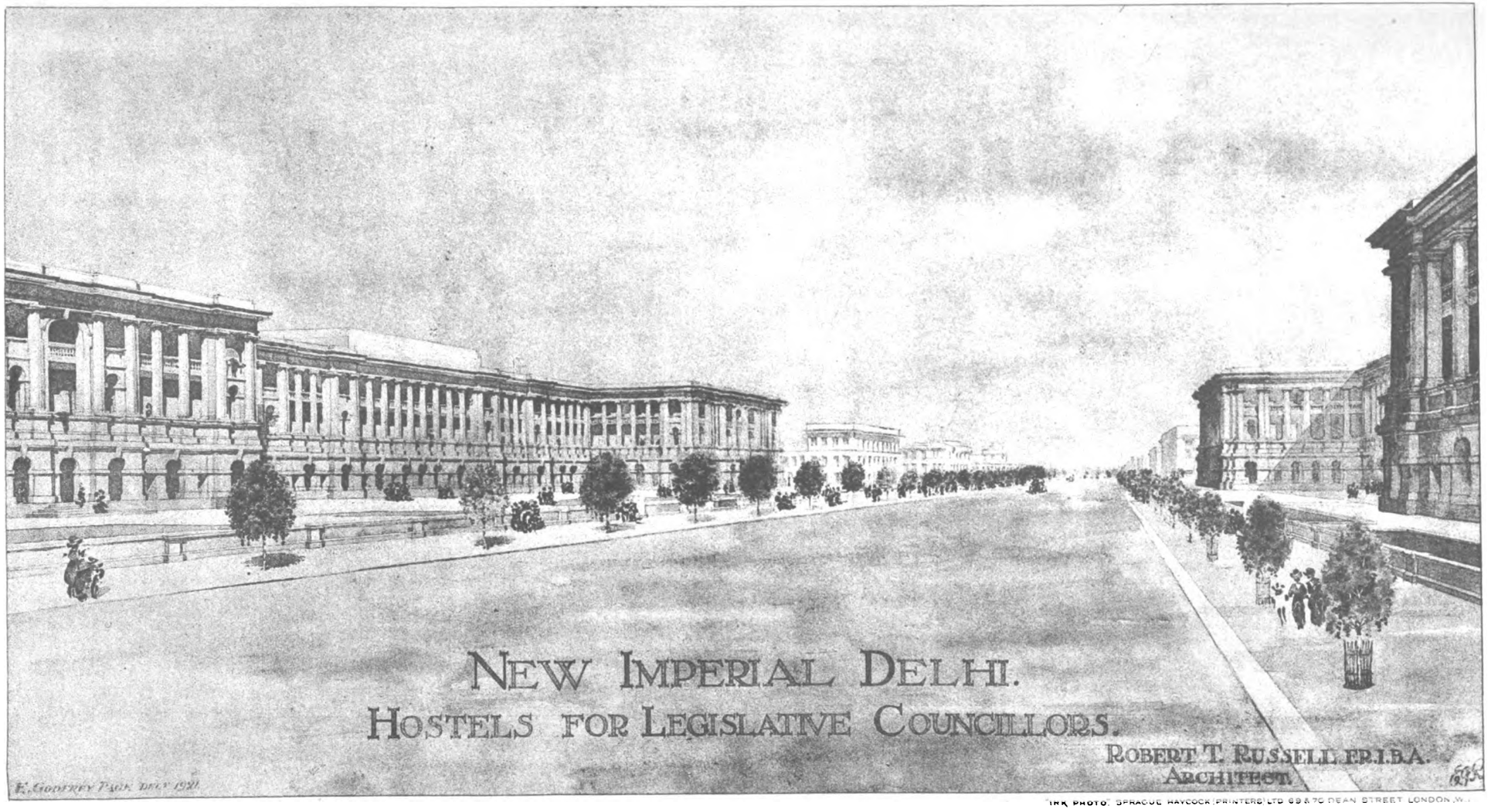


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NEW IMPERIAL DELHI: HOSTELS FOR LEGISLATIVE COUNCILLORS.

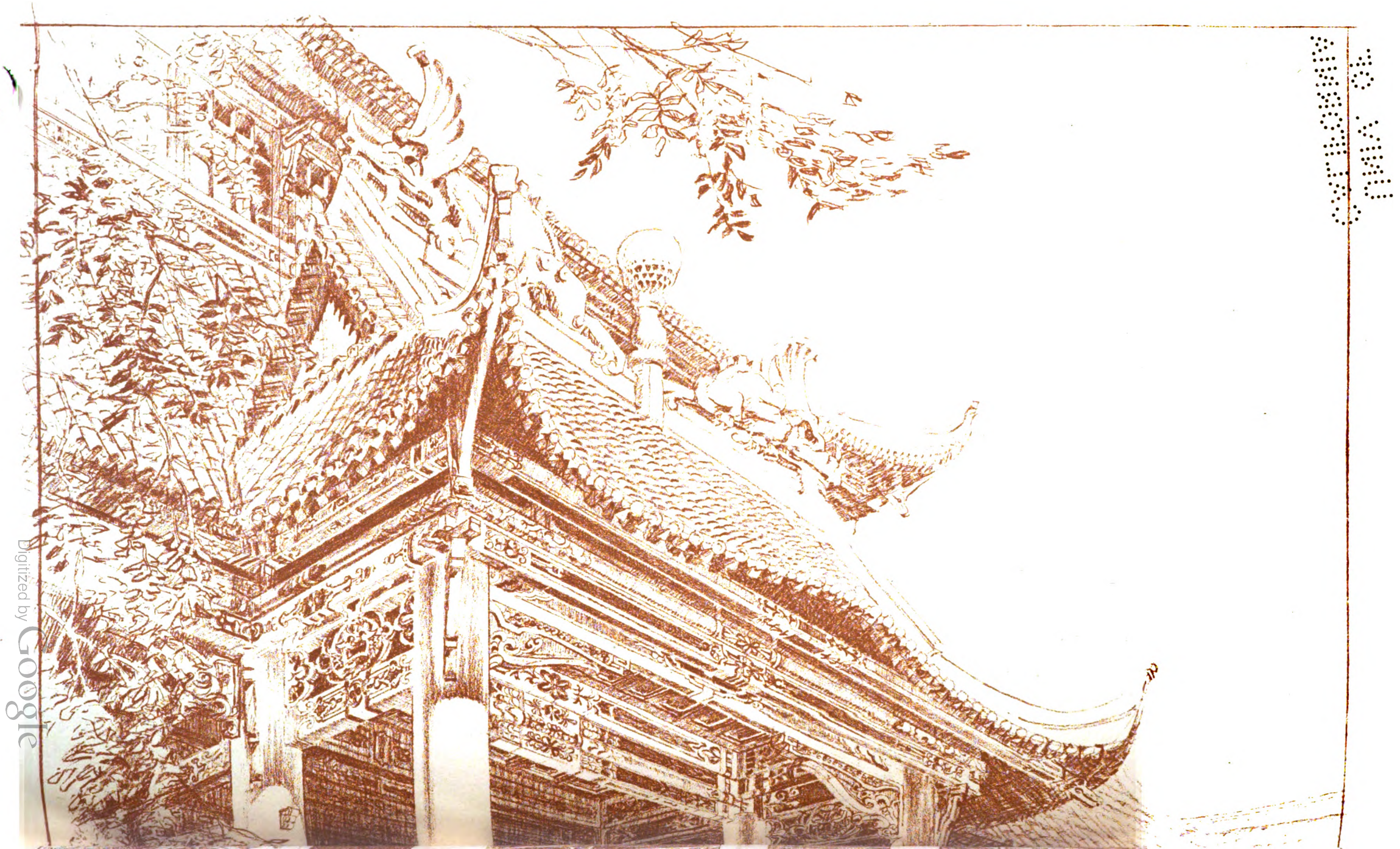
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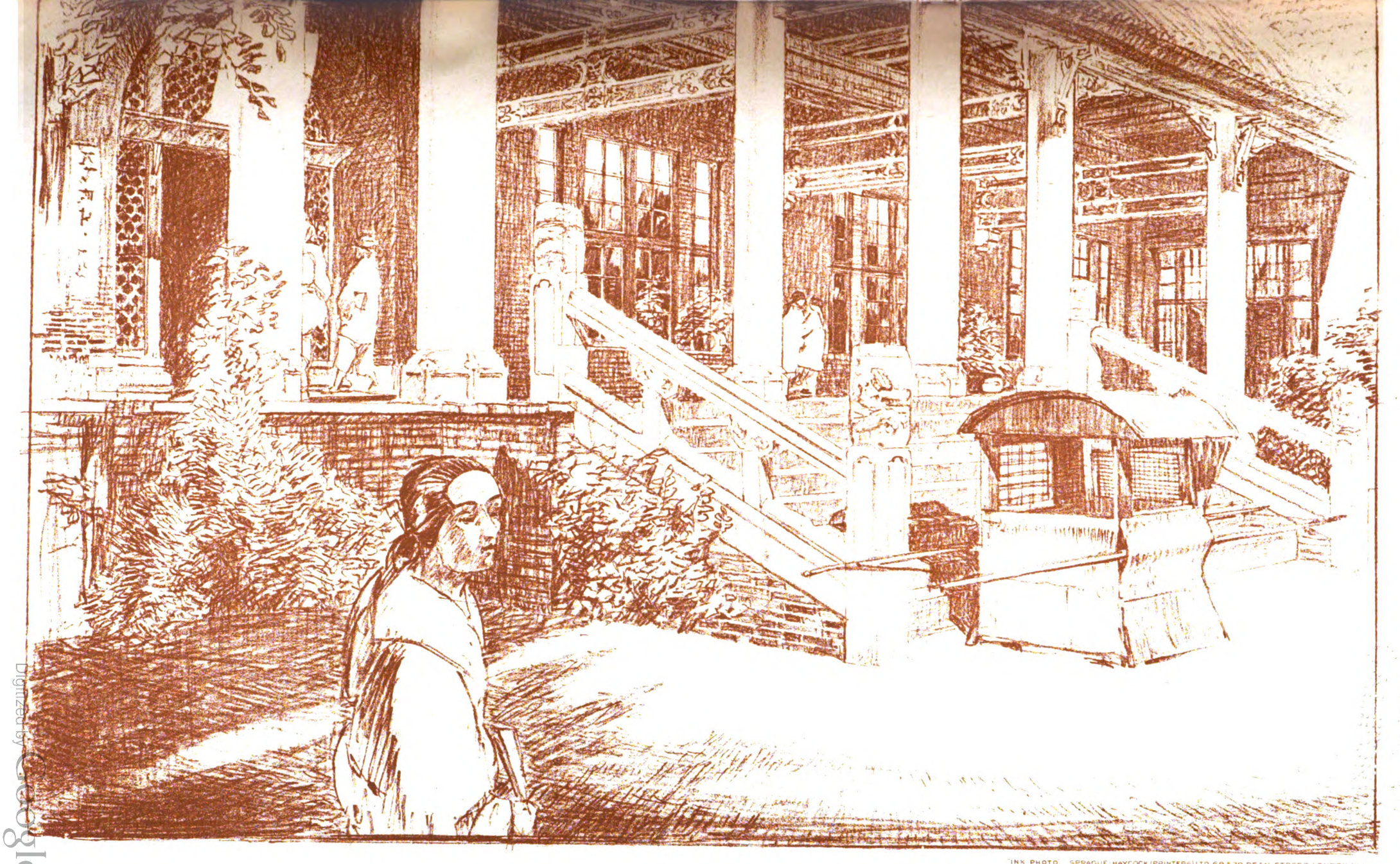
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PORTICO OF THE ADMINISTRATION BUILDING, WEST CHINA UNION UNIVERSITY, CHENGTU, CHINA.

FRED ROWNTREE & SONS, ARCHITECTS.

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Illustrations.

IMPERIAL DELHI. ROBERT T. RUSSELL, Architect.

PORTICO OF ADMINISTRATIVE BUILDING, WEST CHINA UNIVERSITY, CHENGTU, CHINA. FRED. ROWNTREE & SONS, Architects.

MESSRS. COX'S BANK, KARACHI, INDIA. E. B. HOARE (Messrs. Hoare and Wheeler, Architects).

The main façades of this building are constructed with Jodhpur (Rajputana) stone. This gritstone is very pleasant in colour being of a pale pink hue, and very durable. The go-down (or warehouse) is built with local Karachi stone from the Drigroad quarries. It is a yellow sandstone and cannot be regarded as of good quality. The two buildings are on a reinforced concrete raft, and the pillars and floors are similarly constructed.

The marble work was prepared in England by Messrs. Farmer & Brindley, the fibrous plaster ceiling by Mr. W. D. Gough of Kennington, the lifts are by Messrs. Smith, Major and Stevens, of Northampton. Messrs. Dove Brothers, of Islington, were the general contractors for the work which was carried out under the personal superintendence of Mr. Hoare, 22 Portman Street, London, W.1.

Institution of Sanitary Engineers.

The summer meeting of this body opened on Friday morning last at the Holborn Restaurant, W.C. Mr. John H. Blizard, M.Inst.C.E., F.R.San.I., M.Inst.P.H., F.R.I.B.A., F.S.I., president, occupied the chair.

The report of the Council and the statement of accounts and balance sheet for 1921 were adopted. The president congratulated the members on the very satisfactory fact that there was at the moment a cash balance of £180 in the bank with no liabilities.

A medal was presented to Mr. H. R. Reeve for obtaining the highest percentage of marks in the Associateship examination. A similar medal will be sent to Mr. H. Boardman for a similar success in the examination for the preceding year.

The president in making the presentation stated that the presidential badge of office was being worn for the first time at a meeting of their Institution. It had been given to the Institution by their past president, Mr. Nandy Hoskins.

Mr. John H. Blizard, the president, then gave a short address most of which was devoted to the history of the Institution. It was founded in 1895, and at the present moment there were 676 members on the roll. In 1916-17 the constitution was altered and the status improved. A close examination was then made of the members, and the new Institution received as members those who were known to be interested in its welfare: the result being a reduction from 555 to 448. But that was the right thing to do. It was felt that the new Institution should have plenty of life and go: they now claimed to have it. The fact of their being in such a strong position to-day, both numerically and financially, was a proof that the right thing had been done at the right time. The main object of the Institution was its organisation for sanitary engineers, to promote the best interests of the profession and of those with whom they were associated who are experts in matter closely allied to sanitary engineering. There were five grades of membership covering a very wide field. Members were to be found in practically every district throughout the United Kingdom and in many of the Overseas Dominions, including India and Australia. The fact of that being so must have good influence for the betterment of public health. But it will be necessary to progress a long way further before the Institution is satisfied. It was to be hoped that in time entry would be solely by examination. It was very encouraging to see the very gradual increase in applications for examinations of all grades—particularly for students. A new Board of Examiners was again revising the syllabus in order to make the examinations more practical than hitherto. That was of great importance and could not be too often impressed upon the mind of the student. A young man studying for the examination should make it a great point to acquire such practical knowledge as is possible by getting about and into all the works possible. Also into those allied to sanitary engineering. Furthermore, he should make a special effort to be able to sketch and prepare geometrical detail drawings also make careful and close study of building construction. It was impossible to write a specification, take out quantities and prepare an estimate without a really good experience of building construction. It was required for every branch of sanitary work. Last year about Christmas an examination was held in Australia at which twelve sat, the result being that ten passed, and only two failed. That fact proved what a hold the Institution of Sanitary Engineers was getting upon the public, even so far away as Australia, as an organisation for improving the practice of sanitary science and the execution of first class sanitary work. In the subsequent, and latest, examination there were no less than thirty-two candidates. The president then turned to a different subject and referred to an address given before the members a year ago by Mr. Moss Flower. He particularly dealt with one point in connection with rings and combines of manufacturers who keep up prices. Since that address a great change for the good had come over the country, in spite of lock-outs, strikes, etc. Rings were gradually falling to pieces. Let them take, as an instance, stoneware pipes, iron pipes and cement. Last year he wanted a lot of iron pipes: the British quotations proving to be "silly, really silly," Mr. Blizard obtained quotations from France, Belgium and Germany. It proved a wonderful lever to use in order to bring down the wretched English prices. To-day he was paying rather less than half those quoted last year. He also found two cement manufacturers who seemed to be outside the ring. Stoneware pipes similarly were receiving attention. After all it was a question of supply and demand: great competition was going on outside the rings which had the effect of lowering ring prices. As to direct labour in sewer construction, the prices were really wonderful and most encouraging. Even foreign timber prices were getting quite respectable and when compared with pre-war ones it was an agreeable surprise to find them so reasonable. Labour wages were gradually getting down to a reasonable rate and, what was better, the men were working with more heart now than even six months ago, and the time was not far distant when they would be seen at work on houses in course of erection by private enterprise. The bank rate was still falling, which must be a great help in that respect. There was a big silver lining in the dark clouds of unemployment and the time seemed not far distant when everyone would be in a much better and happier mood from the business point of view than at the present time.

The meeting was followed by a luncheon. In the afternoon a visit was paid to the engineering works of Messrs. Gwynnes, Hammersmith.

On Saturday morning a visit was paid to the sewage works, Marsh Lane, Surbiton, and lunch was served at "The Karsino," Hampton Court.

Ratner Safe Company, Limited, Stafford House, 29 Cannon Street, E.C. 4, inform us that a considerable quantity of strong-room fittings were supplied by them to the Leicester Square Branch of Lloyds Bank (Mr. Edward Maufe, M.A., F.R.I.B.A., architect), which we illustrated in our issue for June 16. These fittings included steel cash cupboards, adjustable steel shelving, and tiers of steel pigeon holes.

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Modern Floor Coverings.

By E. H. Howard.

It is interesting to note, with the development of building conditions, how various materials, as they are adopted for general use, pave the way for improvements in still different fields. This is evident, says "The Architectural Forum," in practically every branch of construction. For example, deformed bars and rods were not considered usable until the time when concrete became a commercial product. With the development of plaster work came wire and metal lath with their many modifications and suitability for use as reinforcing material for concrete construction.

It is indeed difficult to keep pace with all the materials which are continually appearing on the market, and to know the real merits of each product as distinguished from the claims set forth by the manufacturer, for there is sometimes a wide difference between the actual merits and the advertised merits of many materials. Another important matter is the ability required of the architect in determining and using the material suitable for special conditions. For example, there are some locations throughout the country where soft brass piping cannot be used for cold water. There is but little question that brass piping is preferable in the majority of instances to any other kind of pipe for both hot and cold water, but the character of the material used must be adapted to local conditions.

Manufacturers of materials used for floor coverings have been extremely successful during recent years in developing new products, and these new materials are particularly to be noted in considering their adaptability to various uses. The typical floors of wood, such as maple, oak, birch, or beech have changed but little since first adopted. From the "square-edged" days, wood floors have undergone a change to the use of narrow faced, tongued and grooved, and end matched, together with the use of varying thicknesses of wood, but in other types of floor, such as those of composite materials, we find radical differences and variety of developments in the field of covering materials, which formerly meant wood or marble.

About thirty-five years ago thin oilcloth for floor covering was placed upon the market. This came in yard and two-yard widths and was used particularly for covering kitchen floors. The English oilcloth very soon came into the market and appeared in 24-foot widths, making it possible to cover almost any room in one piece. It was used very generally, even on the best work, and floors of many office buildings during that period were covered with this material.

Gradually from the manufacturer of this oilcloth the idea of linoleum was evolved. At first it was very thin and looked like oilcloth and had designs printed in the same general way, and came in 8/4 or 6-foot widths. Later these widths were increased to 16/4 or 12-foot, and also appeared in several grades and thicknesses up to and including $\frac{1}{8}$-inch. From the manufacture of this material the inlaid or tile linoleum was devised in 8/4 widths with the same various thicknesses, the colour and design extending entirely through to the fabric or backing.

Cork carpet was very little used up to fifteen years ago, but since that time has found an extensive market. It varies in thickness from $\frac{1}{4}$ to $\frac{1}{2}$ inch, and on account of its elastic, resilient construction is exceedingly well adapted for many places where linoleum could not so well be used. Cork carpeting is practically noiseless; it is a little softer and less dense in composition than linoleum, and has been used in a great many installations of varying types with satisfaction. It is especially adapted for floors of large office buildings, auditoria, churches and similar edifices. The places where cork carpet is to be used should be selected with considerable care, because the porous construction of the material itself renders it unadaptable for such places as kitchens where grease and stains may easily get on the floor. Unlike linoleum, cork carpet cannot be either waxed or stained, as such treatment immediately destroys its value.

When linoleum is applied to wood or concrete floors it should always be cemented with liquid cement. The type of this cement varies with the workman who is applying it. Some architects specify linoleum to be applied with waterproof cement; others simply specify a cement. Whenever the government uses the linoleum known and specified as the U.S. Standard Battleship Linoleum on ships, it is put down with waterproof cement. This is practically because it frequently comes in contact with moisture, and also because it is applied to an iron deck.

Experience proves that the best results in laying linoleum are obtained when a quick-drying cement, properly applied, has been the adhesive medium. Waterproof cement undergoes a chemical action when applied to concrete. Unless sufficient time is allowed for the evaporation of the volatile content, gases will form which cause puffs or bubbles to appear in the finished surface. To avoid this difficulty the linoleum should not be immediately placed in position as soon as the cement is applied. The exact time to be allowed between placing the glue or cement and laying down the linoleum can be determined only by experience.

When linoleum is applied over concrete and there is dampness present in the concrete, there is considerable likelihood that the backing may separate from the linoleum, causing the linoleum to bubble and eventually break through. This is particularly true where the concrete is deposited directly upon the earth. The solution of the problem is either to waterproof the upper surface of the cement or to have sufficient cinder fill under the concrete, with an applied coat of damp-proofing material on the top so that the moisture may not work its way through and attack the material which holds the burlap to the linoleum composition.

A concrete floor with a linoleum or cork carpeted surface is very satisfactory in that it is almost noiseless; it affords an insulating material between one floor and the floor below, and it is sanitary and can easily be kept clean. The most advanced method of laying linoleum is to cement a lining felt over the entire floor area to which the linoleum is cemented. When the material is applied in this manner to a concrete floor which is sufficiently dry, the most perfect results possible to obtain are assured, providing the concrete is sufficiently level and smooth. This lining felt comes in two widths and is similar to unsized building paper.

When linoleum and cork carpeting were first cemented to concrete floors, it was considered necessary that the entire floor surface should be rolled and heavily weighted with sand bags. This process of laying is not usually adopted to-day, particularly where the lining material must be brought into intimate contact with the entire surface to which it is applied and all air expelled. If the cement is properly applied and timed correctly there is little chance of the material separating from the floor. The floor covering should always be cut to approximate lengths on the floor and left to "weather" for a certain time before being applied. This will give an opportunity for the material to swell (there is little likelihood of shrinkage), and when laid it will remain inert.

Some architects also specify that all seams should be bradded. Usually linoleum, when laid with butt joints, is weighted down with sand bags along all seams. This is obviously desirable in order to hold in place the edges of the material which otherwise might have a tendency to curl. If the concrete is of the more or less porous quality, and if a quick-setting cement is used, a steel brad may be driven through the linoleum into the concrete with the assurance that the seam will stay in place. The brads best to use are approximately $\frac{3}{8}$-inch long and have very small heads which make them practically invisible. If the workman cannot obtain this steel brad at the time needed, a worn phonograph needle can be used with very good results.

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It is quite essential that the architect, when specifying such floor coverings, should be able to differentiate between the different kinds of materials. If, however, the material be purchased from a well-recognised manufacturer there is little danger of a poor quality being used. It is well to see that the material is properly cured and to have it delivered at the building where it is to be used as soon as conditions warrant, so that it may be carefully examined and placed under observation for a period before being laid.

Some linoleums are made up of all sorts of adulterated materials, such as whiting, wood flour, sawdust, and inert pigments. The U.S. Standard Battleship Linoleum is made with good oil, a proportion of pulverised cork, and a small proportion of wood flour, with a binder in which the colour may be mixed. This linoleum may be treated with special stains or waterproofing finish in such a way as to make the surface practically impervious to the absorption of any material. For example, both ink and grease can be removed without leaving any stain whatever.

Cork carpet is made entirely of ground cork, oil and pigment, although some instances have been found in which wood flour and sawdust have been used on account of economy in manufacture. However, cork carpet made under these conditions would not be practical, as in the presence of moisture the wood particles decompose and the value of such a carpet as a floor covering would be destroyed far too soon.

In recent years the designs which it is possible to obtain in linoleum, both printed and inlaid, cover a range so wide that almost any taste may be suited. Some of the effects that are obtained are of such a character that at a distance one can hardly tell the difference between the linoleum and a good rug. The pattern lines have been softened and the appearance of careful weaving has been so well studied that linoleum has established a place for itself never before obtained. Colours can also be had suitable for any use.

In cork carpeting, designs are not so frequently used. Usually we see floors of this material of a solid tone, frequently, however, with panels or borders of different colours to break up the monotony of a single-colour floor. In this material also considerable variety in colours is obtainable.

The widespread use of fabricated floor coverings in business structures and public buildings is in itself an indication of their excellence. These flooring materials are used because they are economical as well as particularly suited to uses of the most widely different kinds.

In addition to cork carpeting and linoleum there are various other composite floorings.

In considering the question of floor coverings it is well to realise fully the tremendous advance made in linoleum and cork carpeting. Some of the English manufacturers, prior to the War, made an inlaid linoleum which was an exceedingly good counterpart of terrazzo. The gloss in the marble chips appeared to advantage, as well as the duller colour of the cement. This material was particularly satisfactory where large areas could be covered without the need of any panelling, but there are many instances where this linoleum was used with a panel and border composition which was very effective.

Many times in office buildings and places where the floors receive hard usage it has developed that the linoleum has had excessive wear in some particular place, for example, before a door. If the linoleum in such a place is a plain colour the only method of repair is either to patch the linoleum or to take up a full width and lay a new piece. This necessitates the waste of considerable good material, and sometimes it is difficult to get the shade necessary to match the adjoining work. However, if the architect selects a pattern linoleum it can easily be repaired, if worn, without any great expense.

Another interesting fact regarding linoleum is the statement made by an eminent biologist that it is "bacteria proof"; in fact, he maintains that the presence of linseed oil in the linoleum has a distinct tendency towards disinfecting the room in which it is laid. Tests have been made which show that germs cannot live or propagate on linoleum. As a floor covering for hospitals it is exceedingly useful.

There are infinite variety and possibilities in the use of linoleum, and so it is with cork carpeting, which, as has been previously noted, has a much softer surface and texture than linoleum, and it is often used in work of a character different from that to which linoleum is adapted. Cork carpeting, for example, can be used with a large field and with a narrow border around it, such as one frequently finds in two-tone rugs. This gives a pleasing appearance, and also satisfactory service.

No consideration of floor covering would be complete without a reference to cork tile. This is of the same general composition as the "cork carpet," excepting that cork shavings are used and are formed into tiles under high pressure. As a result the density of the tile is even greater than that of linoleum, and still there is no appreciable loss of resilience. This material, in addition to being available in almost any colour, shape, size, or design, can be used in a wide variety of patterns, making it a material of considerable merit. The tile is impervious to almost any substance except grease, and is readily cleaned. As a floor covering its use is not limited to any certain character of work, but is adapted to almost any situation where a clean, sanitary, noiseless floor is desired.

Linoleum and cork carpet have both been frequently used as covering for stair treads, and are found very satisfactory for this purpose. Neither material offers a slippery surface under any conditions, and with a metal nosing or a safety tread at the edges the linoleum is protected from wear at its weakest point. Under certain conditions these same materials may be used for the risers as well as for the treads, sometimes improving the appearance.

Cork tile seems to be better adapted to special forms of construction than the other carpetings. It may be moulded into special shapes, such as sanitary bases, and in stair construction may form a cove between tread and riser. With this material also a nosing must be used in order to protect the edges from damage. Cork tile requires a slightly different floor preparation from the carpeting. If placed on concrete the surface should be smooth-trowelled. If placed on wood there should be a reasonably smooth surface and over this a layer of waterproof paper or felt. It is essential that cork tile be laid under such conditions that it will not be exposed to dampness from below.

As yet nothing has been said relative to rubber tile and similar materials. Rubber tile was originally an interlocking tile type, in which each piece was laid individually on the floor. Now this same composition is put together in sheet form, and can be arranged with border and field as desired. Sometime burlap is used to hold the material together so it will not be damaged in either transit or laying. It also forms a key between the composition and the floor to which it adheres. Rubber tile has an almost limitless range of colour, composition, and pattern; it is practically noiseless on the floors, and is a soft but durable and almost waterproof medium.

Another type of floor covering is the synthetic rubber, in which a variety of colours may be had. For example, a very good representation of Siena marble, black and gold and grey with a black vein, may be obtained. This is true also with terra cotta, white, and black. In appearance this material departs radically from other floor coverings on account of its mottlings, grainings, and colourings. There is a large variety of plain colours as well as the variegated surfaces. The colouring is carried throughout the entire thickness of the material, so that in the event of wear the colouring is not destroyed. The characteristics of this type of floor covering are similar in every respect to those of rubber. It is soft and comfortable to walk upon, and is noiseless, and, like a rubber

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Architects.

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surface, it is hard enough to be impervious to liquids and stains.

In all the types of floor coverings that have been mentioned so far the maintenance costs are negligible. Damp mopping or wiping up the floor is quite sufficient to restore it to a clean appearance, and scrubbing is seldom necessary. Linoleum and carpeting are sometimes stained or painted, but this is not necessary with the rubber or synthetic flooring.

In discussing composition flooring one must always have in mind that some floors have a close similarity to concrete. Still, this analogy is rather remote, because the surface is not so hard but still is dustproof and durable, and is made of various materials. One of the basic compounds is magnesite, which adds the characteristic of an inert material. It is not susceptible to swelling or shrinking, and when once in place is always in place as long as the under material remains unmovable. This material is put down in a plastic mass, and can be carried up on the walls to form a dado, base, panels, or any pattern.

In preparing the under floor for this sort of work it must be borne in mind that it can be laid on concrete or wood, or practically on any surface, with the assurance that it will properly adhere. When it is laid on wood a fine mesh wire on expanded metal is tacked down to act as a binder to hold the material together and to the floor. With concrete this is not necessary. In preparing a floor for linoleum or for cork carpeting where concrete is the basis to which the material is to be applied, the concrete should not have a smooth-trowelled finish. The floor should be reasonably level and smooth, but if the concrete is a little rough it forms a better key for adhesion. However, when the composition is applied to a wood floor the floor should be smooth, as otherwise the roughness is likely to show through the linoleum, and the wear will be the greatest in the uneven places. With so great a variety of floor coverings available the architect will be able to make a selection which will satisfy every requirement of service and add an appearance of dignity.

New Books.

"Old Irish Glass," by Mrs. Graydon Stannus. New edition, 1921. "The Connoisseur," 1 Duke Street, S.W. (The Connoisseur Series, edited by C. Reginald Grundy.) 12s. 6d. net.

The great period of Irish glass-making, in the second quarter of the seventeenth century, continued till 1780 and later, when Irish glass held its own against that made in England and the Continent. The Act of 1788, which prohibited the export of glass from Ireland, seems to have crippled this native industry, which continued, however, at Cork, Waterford, and Newry till the middle of the nineteenth century, and in Belfast and Dublin till a good deal later.

It is a curious fact that what was considered at the time as one of the defects of Irish glass is now a point highly valued by collectors. I refer to the dark colour of Irish glass, which continued for more than a century, and could rarely, if ever, attain to the clearness of English glass of the time. At Waterford, whose early glass is famous for its beautiful dark grey-blue tone, they eventually succeeded after 1830 in making the glass almost as white as that of Bristol. "Little did these glass artists think," says Mrs. Stannus, "that a century later people in all parts of the world would try to reproduce the early dark colour without success." The last maker of Irish flint glass was Pugh, of Dublin, but the industry was dead by 1896.

This work by Mrs. Stannus—who had, I believe, a very fine display of this glass at the Fine Art Society more than a year ago—is richly illustrated with more than sixty plates, many of these (plates xviii., xix., xxiii., and xxxviii. are examples) being admirable reproductions. It is interesting to the connoisseur of glass, and to the collector of Irish glass it is indispensable. S. B.

"American Practical Plumbing." By R. M. Starbuck London: Page & Co.

The lines upon which the author of this work has proceeded may perhaps be best illustrated by quoting a paragraph from his preface to the following effect: "A . . . serious . . . error on the part of many authors is the omission of minor details. While to the author, who is naturally a man of experience and education in his special line of work, the statement of simple, and to him obvious, facts seems a matter of foolishness, ofttimes, to many of his younger and more inexperienced readers, the statement of those simple things is a matter of utmost importance, and a means of establishing the main principle more strongly in their minds." To satisfy therefore the conditions it may be that at times a suspicion of indulgence in triteness may be aroused, but the book is one which certainly merits great praise for its thoroughness and practical exposition of its subject-matter.

And this may be said, despite the fact that in many respects the methods advocated are opposed to English practice; it does not appeal to the reviewer to assume an attitude of insular prejudice, or at any rate, of insular animadvertive criticism, merely because of difference of views as to desirable methods of sanitary procedure in England and America. But having allowed this as a reason for modification of criticism, it may thereafter be said, that such methods would arouse over here, in many instances, fierce opposition and disapproval.

English people believe in removing drainage and wastage of all kinds from within doors as soon as possible, whilst Mr. Starbuck, on behalf of his fellow countrymen, evidently approves an elaborate system of carriage, not alone of waste but of soil, within the boundary of the four walls, even when it is obviously possible to transport all such promptly to the exterior. Of course in America the greater severity of the weather may justify inside carriage. And though theoretically Mr. Starbuck approves diminishing the number of joints, yet in practice he shows a most bewildering assemblage of a feature, which is in its nature a weak factor in a sanitary system.

The evidences of thoughtful treatment and of care are numerous; amongst other chapters may be commended those dealing with traps, water-closets, water supply and boilers. It is true that the chapter on traps may be commended, but this does not imply that some of these fixtures as approved by Mr. Starbuck would not be condemned by all Englishmen. He also advocates the omission of the wire balloon at the top of the ventilated soil pipe, a feature thought here to be so desirable for preventing birds from nesting in the pipe.

Where in England concrete is required as a foundation for lines of drains, in America it is apparently regarded as optional; and yet, such a collapse, as indicated in figure 71, would surely be sufficient to recommend its use. Again, manholes do not seem to be used, with rare exceptions; where we believe in avoiding concealed junctions, our brothers beyond the pond apparently regard them as quite *en règle*. As a substitute for manholes it would seem that clean-outs are advocated, but it is a substitution that would not be tolerated in England. To revert for a minute to the subject of traps: it is not forgotten that some people consider it desirable to eliminate trapping to the utmost, and it may be agreed that a multiplicity of traps is undesirable, but wherever they have to be used they should be of a type where all internal unscourable surfaces are absent, and such shapes as the drum trap should be drummed out of the market. The really very good chapter upon water-closets is followed by one upon local ventilation that is less to be approved from an Englishman's standpoint; as for the fitting shown in figure 182, it is a marvel that any country should install it under any circumstances.

The chapter upon modern methods and devices in country plumbing is another of the interesting and informative portions of the book; indeed, it is but doing

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justice to say that the whole work from cover to cover bears this character. In the lengthy section, however, devoted to water supply and heating methods, Mr. Starbuck seems to have found his métier, though here and there certain points advocated may be open to dispute, as, for instance, the advisability of tapping from the return instead of the flow; in this respect figs. 313 and 314 are not to be recommended, whilst fig. 315 would be satisfactory.

Chapter xxix., dealing with theory for the plumber, is short but useful, and yet the description of the contest between a vacuum and atmospheric pressure, as given on page 372, lacks perspicacity.

It is to be understood that if this book were to be debated page by page it would stand the procedure very well, but it must be at the same time made quite clear that English plumbers, or rather it may be said, English architects, cannot take it as a text-book. There is a good index, which needs only slight revisions.

Housing in Scotland.

The following figures show the progress that has been made in State-aided housing schemes in Scotland to May 31, 1922:—Permanent houses completed, 8,671; temporary houses completed, 655; reconstructed houses completed, 89; houses completed under the private subsidy schemes, 1,672-11,097.

There are 9,322 houses at present under construction in connection with housing schemes carried out by local authorities and public utility societies. The total amount paid by the Scottish Board of Health in respect of the 1,672 houses completed under the private subsidy schemes is £403,829 13s. 4d.

The Scottish Board of Health have issued a notice to local authorities reminding them that houses that are being built by private persons under the subsidy schemes must be completed by June 23, 1922, in order to rank for the Government grant (£230 to £260 per house). The Board have asked local authorities to ascertain the stage which the construction of the houses has reached so that they may issue the necessary approval certificate only for those houses which are completed before or after June 23. It is anticipated that there will be a rush of applications for the subsidy within the next few weeks for houses that have been approved. Under the private subsidy scheme sanction has been given for the erection of 3,193 houses in Scotland, of which 1,670 houses have been completed and grant paid thereon to the amount of £403,633 6s. 8d.

General.

The Rhymney Urban District Council has decided to apply to the Ministry of Health for permission to erect 150 more houses.

Newcastle Education Committee intend to proceed with the erection of a secondary school at Heaton with all possible speed. It is proposed to appropriate part of a site acquired by the City Council for housing purposes.

Blyth Harbour Commissioners have accepted the tender of Sir Robert McAlpine & Son for the renewal in reinforced concrete of a quay in the South Harbour, the time for completion of the contract being twelve months.

Mr. R. Fisher, contractor, North Shields, has received the contract for widening the Whitley Bay Promenade from 40 ft. to 60 ft. for the Whitley and Monkseaton Urban District Council. The tender amounted to £39,163.

The Blackpool Education Committee has been granted permission by the Board of Education, subject to certain conditions, to prepare plans and invite tenders for the erection, at an estimated cost of £23,000, of a new secondary school for girls at Forrest Gate.

The Doncaster Town Council at their last meeting agreed to accept the design submitted by Messrs. J. and H. Patterson, Manchester, of a war memorial to be erected near the main entrance gates of Elmfield Park, recently acquired for recreation purposes.

Mr. Francis Durkin, who has been appointed borough engineer and surveyor at West Hartlepool, in succession to the late Mr. Nelson F. Dennis, served his articles in the office of which he is now head. For the past three years he has been deputy borough engineer. The salary is £600 a year.

Mr. George Evelyn Tidmarsh Laurence, A.R.I.B.A., of Cranley, Twickenham Road, Teddington, architect, for thirty years architect of the Swansea Educational Authority, who died on April 6 last, left estate of the gross value of £17,428, with net personalty £16,099. Probate of his will has been granted to his widow.

The contract for the construction of the large roof at the extension to be carried out at Olympia, London, has been placed with Messrs. Redpath, Brown & Co. (Ltd.), Edinburgh. Messrs. A. J. Barry & Partners, Westminster, are the engineers responsible for the design of the roof. Messrs. P. & W. Anderson (Ltd.), London and Glasgow, are the principal contractors.

Messrs. Ingall, Bridgwater & Porter, of Birmingham, are the architects of a cinema proposed to be erected in Suffolk Street, Birmingham, under the name of the Orient Picture House, at a total cost of £74,000. The plans have been approved by the licensing authorities and the local authorities. Monolithic Structures, Limited, 74 Victoria Street, Westminster, S.W. 1, are the engineers.

The University Court of the University of Edinburgh has resolved to proceed as expeditiously as possible with the completion of the first of the King's Buildings on the Liberton site, a series of laboratories for the use of students of chemistry in the Faculties of Science and Arts, which has been in course of erection continuously since November, 1919. It was also decided to proceed with the erection of a war memorial.

Messrs. Cropper & Co., of Southwark, are removing their folding-box factory to Colthrop, near Thatcham. At the last meeting of the Newbury Rural District Council plans were passed for the erection of a factory 880 ft. long by 100 ft. wide. Messrs. Cropper state that when the new factory is ready they will create additional employment for 500 or 600 people. They have been approached by local brickmakers, and have agreed to substitute local bricks for the purpose of providing employment in the district, as nearly one million bricks will be used.

Gourock Town Council has decided to proceed with the erection of new municipal buildings. A slight modification has been made in the estimates originally submitted by the tradesmen. When the question of building new Council Chambers was before the Council several months ago considerable indignation was raised in the town. At one of the protest meetings an understanding was given that the work would not go on until Renfrewshire County Council was prepared to commence the new police-station, which is to adjoin the municipal buildings. As this work has been authorised the Council are now to proceed with their part of the scheme.

In the House of Commons last week Mr. James Wilson asked the Minister of Health whether his attention had been called to the action of the Marketing Company of the Associated Portland Cement manufacturers, in excluding from British markets cement produced in Norway, under a threat to flood the Norwegian markets with British cement, and, in view of the effect this would have on maintaining the existing high cost of building, whether he would take steps to ensure that British contractors would, as heretofore, be in a position to secure the equally serviceable and less costly cements produced on the Continent. Sir William Mitchell-Thomson, who replied, said: "The answer to the first part of the question is in the negative, but if the hon. member will send me any information he may have on the subject I will consider it."

Housing schemes involving an investment of £75,000 have been launched by Cadbury Brothers, Ltd., at Bournville for the benefit of their workers. For this purpose stock and mortgages to the amount mentioned have been handed over to the trustees of the Men's and Women's Pensions Funds. Of the total sum about £40,000 is to be invested with the Works Housing Society (initiated in 1919) on first mortgages of houses to be erected by that body, which will be let to employees of the firm. Advances will be made up to two-thirds of the cost of the houses, interest being at 4 per cent. per annum. A further part (probably £30,000) will form a loan fund to assist employees desirous of building or purchasing houses. The Pension Trustees will lend money from this special fund to employees at 4 per cent. on mortgages repayable over a period. The remaining £5,000 will form a loan fund at 4 per cent. to be devoted to a special housing scheme for the erection of small houses and bungalows for women employees or pensioners.

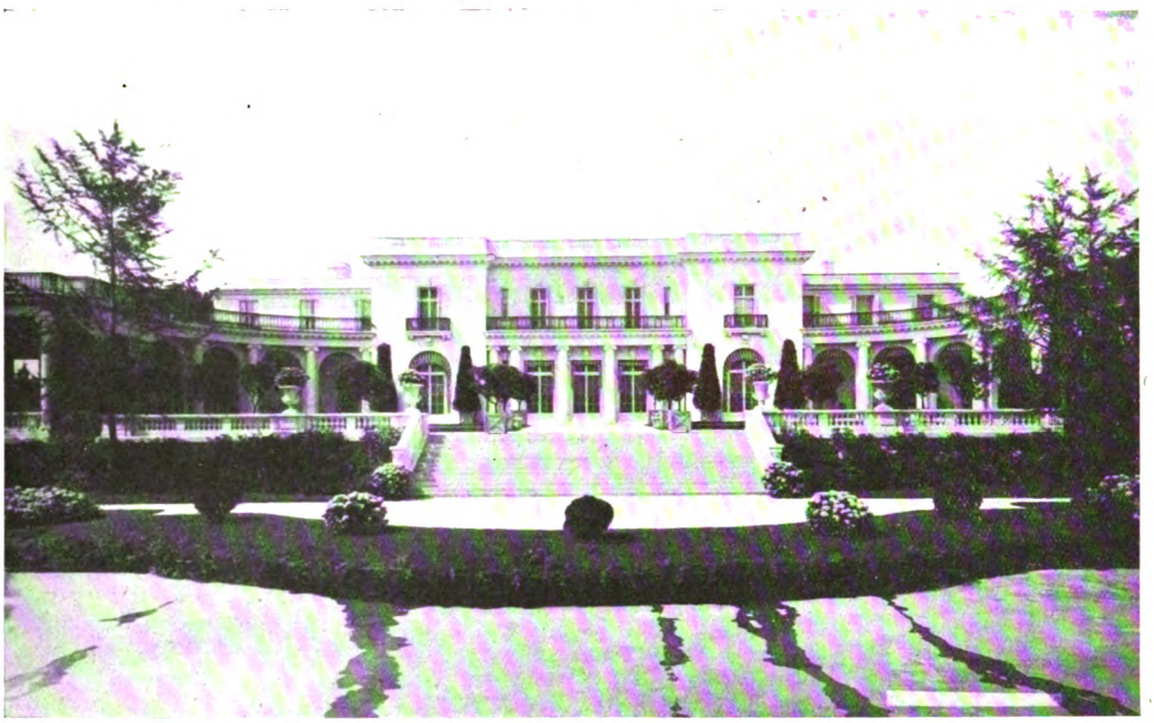
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Thomas Hastings, R.I.B.A. Gold Medallist, 1922.



HOUSE OF MR. MURRAY GUGGENHEIMER, CARRÈRE & HASTINGS, Architects.

We are in cordial agreement with all that Mr. Waterhouse said in presenting the Royal Gold Medal to Mr. Thomas Hastings on Monday evening, and divided though we frequently are in questions of professional politics, Mr. Hastings may feel sure that the great honour awarded him is in the opinion of his colleagues in this country a well-merited and unavoidable one. Since the deaths of Stanford White and Charles McKim there has been no American architect who so fully sums up in his achievements the expression of what may be described as the architectural Renaissance of the modern world. We are convinced that in centuries yet unborn men will recall the great works which have been produced by the best designers in America during the last four decades as we recall the achievements of the masters of the Italian Renaissance. More than this, it is probable that to America is chiefly due the growing conviction that architecture is among the greatest expressions of civilisation, and one in the growth and permanence of which all should feel pride and interest. And it may be further added that the fact that this Renaissance has occurred in a land the people of which have justly earned for themselves the reputation of being the most hard-headed business community in the world, has a special significance. Near as France is to our shores, and great as is her art, a similar efflorescence of architectural activity might have been discounted here as peculiar to a Latin people and inapplicable to our conditions. But America, if not to be compared with England—an old and historic land—is in its resources and its possibilities the nearest counterpart to the mighty empire to which we belong, and to whose ordered growth and development we hope Britain as the pivot will indicate the fact that it is the centre of a great and growing modern community of nations English in their origin, but conterminous with the world.

That American architects should be firmly convinced that out of tradition alone real architectural development is possible may seem surprising to those who look at the question superficially. In reality it is inevitable. Architecture is little more than the expression, more or less direct, of construction; and construction is governed by scientific laws. As Macvicar Anderson said years ago in a presidential address, people were always asking for some new expression of architectural form, but the habits and wants of men of which it is the outcome have remained much the same for untold generations. He might have added that the physical laws to which it had to conform were even more unchangeable, and that the early builders had conformed to these through instinct while we conform to them through fuller knowledge and understanding. It is difficult, if not impossible, to separate the so-called decorative adjuncts of architecture from the constructional, but if we imagine we can succeed in doing so—and it may be pointed out that this alone is what the exponents of *l'art nouveau* and similar manifestations have tried to do—it has been merely to substitute a number of weird and unmeaning forms for others which have the sanction of generations of architects and which appeal to us like the words of a language with which we are familiar. Roger Fry, Clive Bell and other writers on art produce

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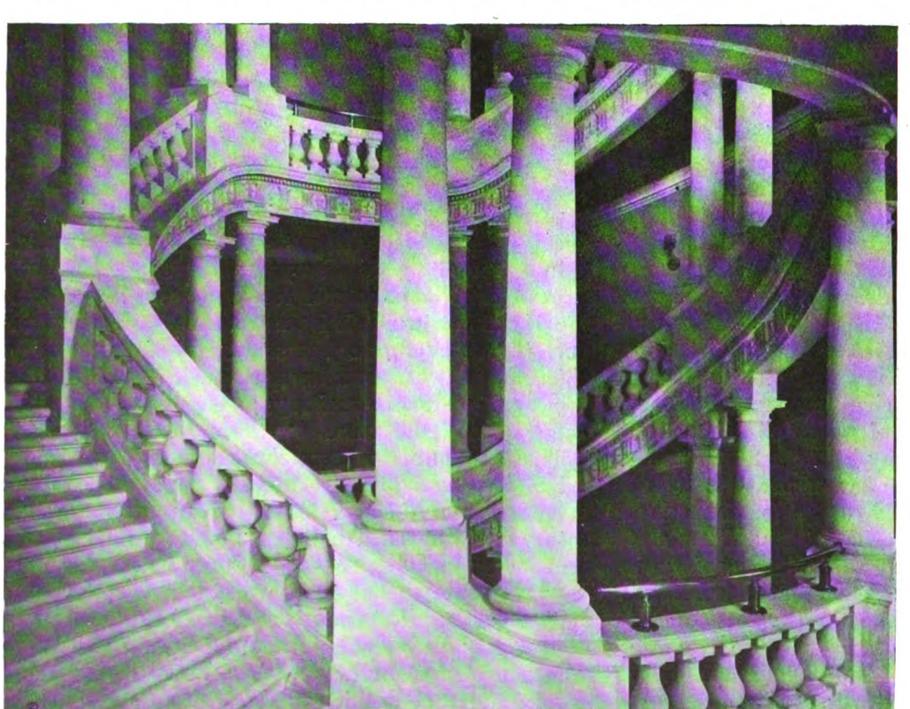
ARCH ERECTED IN STAFF TO CELEBRATE THE HOME-COMING OF THE AMERICAN TROOPS, NEW YORK.

THOMAS HASTINGS, Architect.

a maze of words about "essential beauty in structure," but they fail to point out to us any illustrations of their definite meaning or to give any reasons for their condemnation of the conventions of the past. They would, in a word, try to induce us to hack out a road through an uncharted wilderness while a broad and easily understood highway is already laid down before us. It is they and not we who are slaves to forms and neglect realities.

It was necessary that in laying the foundations of the great structure of modern American architecture its exponents should build on some precedent and on some definite system, and it was equally clear that the choice of that foundation should be the Ecole des Beaux Arts, for in France alone has architecture been recognized as an important national interest from the days of Colbert. American architecture, however, shows in its development that it is no transplanted growth but the outcome of systematic and scientific thought. In Florida and California the indigenous architecture of old Spanish colonies has been absorbed and developed; while in New England the original Colonial and Old Dutch types have enriched the American vernacular. Another controlling element has been the necessity of devising buildings of a scale and height not attempted in Europe, comprising within their construction the last improvements of invention and science.

All these factors have ended in the production of a school of architecture which is as distinctive as that of France, and which, to use a simile, has only borrowed when it could repay with interest. To the pioneers of the great movement, of whom Mr. Hastings and his late partner, Carrère, were great protagonists, we as architects owe a debt of gratitude. What seems natural and passes unchallenged and admired to-day was not achieved without hard work and much controversy in the darker days of the last century, when the "brown stone" fronts of Boston and New York were as tasteless as the majority of our Victorian buildings and when the average American millionaire was no more cultured than his British colleague. The enlightenment of America to the merits of architecture and of design is not due to the inherent taste of the American people but to the fact that its architects have proved their ability to lead and to direct a great movement. The building instinct is not entirely the outcome of the possession of great wealth but in no small measure due to the fact that American architects have given full value for funds they have expended in their clients' interests.



CIRCULAR STAIRWAY, NEW THEATRE, NEW YORK. THOMAS HASTINGS, Architect.

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Our Illustrations: Modern Factories.

The accompanying illustrations show the architectural treatment of a modern factory. There is no reason why the factory should not, without extra cost, be a monument worthy of architectural interest, and this may be accomplished by correct proportions, good lines, appropriate use of materials, agreeable contrasts of solids and voids, and the proper placing of necessary features.

Mr. Wallis, of Messrs. Wallis, Gilbert & Partners, architects, is shortly publishing a book on the construction and design of factory buildings, which will be of great value to firms who are contemplating the erection of new premises.

Efficiency is the most important factor in securing business prosperity.

If the factory is to function properly and be a success, the architect should study very minutely the particular kind of manufacture to be housed, the precise sequence of operations involved. He should bear in mind that the first or supreme importance is output, and this cannot be satisfactorily accomplished unless the factory is as up-to-date as the machinery (which should include the latest improvements) which is to be installed therein; but it cannot even then be completely satisfactory unless due consideration is given to the welfare of the employees, for output depends to a great extent on the spirit behind the efforts of the workers.



ADMINISTRATION OFFICES MAIN ENTRANCE DETAIL.
General Electric Company, Ltd., Witton, Birmingham.
Wallis, Gilbert & Partners, Architects.

To make industry successful the three essential requirements are that: Labour must give its best; Capital must give its best; and the factory must be designed to enable both to accomplish these objects to the best advantage. If these three factors are made to functionwith full efficiency, the combination for success would be irresistible.

Another important factor, which unfortunately in this country is very seldom adequately provided for, is that of extension. A factory should be so designed that each department may be extended without changing its position on plan, or in any way altering the original sequence of work or layout.

A most important point is the choice of materials in the construction. In some cases a steel framed building is more useful and more economical than reinforced concrete; but there is no doubt that generally reinforced concrete is the most up-to-date construction, it gives more light, is absolutely fireproof, and requires no painting for preservation.

New Administration Block and Switchboard Works, Witton.

For the General Electric Company, Limited.
Messrs. Wallis, Gilbert & Partners, Architects.

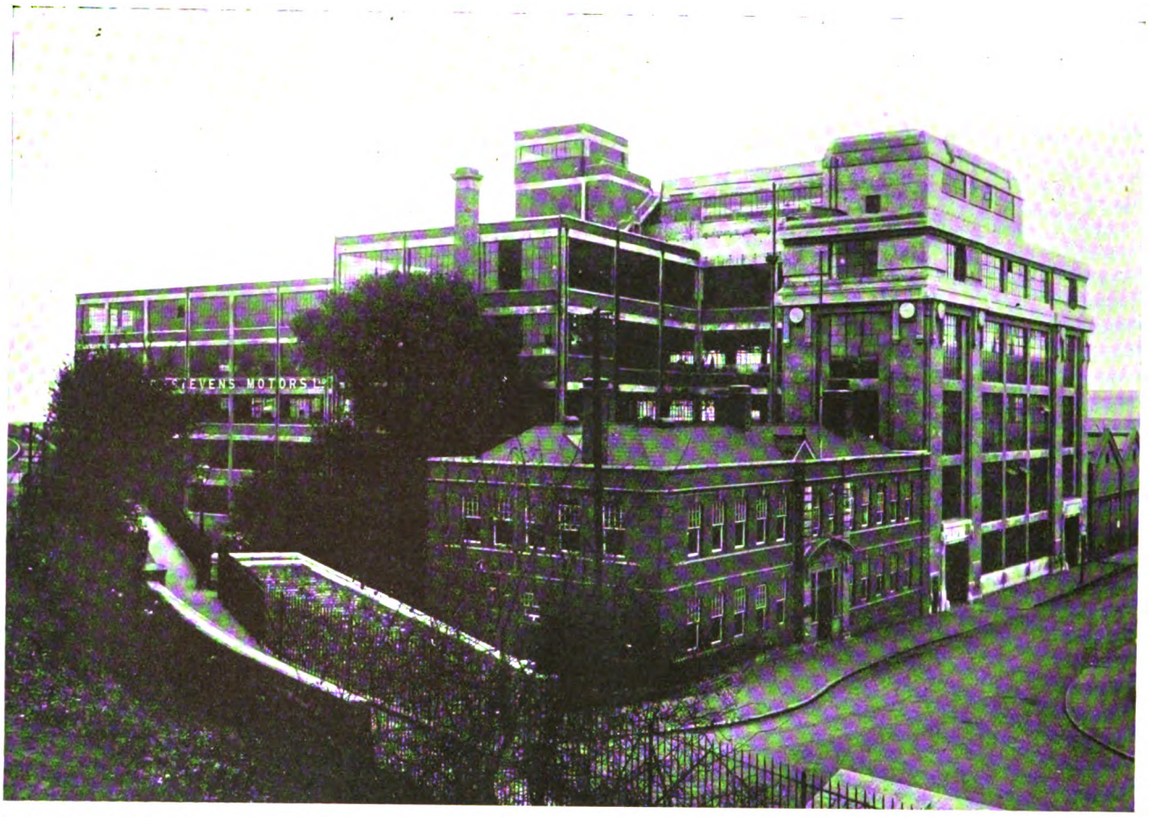
New Administration Block.

The general contractors were Sir Robert McAlpin & Sons, 80, Pall Mall, S.W.1. The Kleine Patent Fire Resisting Flooring Syndicate, Limited, 133/136, High Holborn, W.C.1, supplied and constructed all the fireproof floors. Some very fine panelling was supplied and fitted in the reception room by Samuel Elliott & Sons, of Caversham, Reading, who also were responsible for all the joinery work. J. Barnes and Company, Portland, supplied the Portland stone. Messrs. Williams & Williams, Limited, Reliance Works, Chester, supplied the steel sashes for this building. Lifts were installed by the Express Lift Company, Limited, 9, Greycoat Street. Patent flooring was supplied by Marbello, Limited, Crescent Wharf, Birmingham. Diespeker & Company, Limited, 60, Holborn Viaduct, E.C.1, have their work effectively shown in some of the illustrations. The General Electric Company, Limited, naturally supplied and fitted all the electric lighting and the intercommunication telephones, etc. The ornamental plaster work was executed by Geo. Jackson & Sons, Limited, 49, Rathbone Place, with their usual refined taste. The vacuum cleaners were supplied by Sturtevant Engineering Company, Limited, 147, Queen Victoria Street, E.C.4. The tiling and glazed brickwork by Messrs. Carter & Company, Limited, Poole, Dorset, left nothing to be desired. Special ironmongery and door furniture, including strong room door in basement, were supplied and fitted by James Gibbons, Limited, Wolverhampton. S. W. Francis, Limited, 64, Gray's Inn Road, W.C.1, supplied their well-known spring roller-shutters. J Booth & Sons, Hulton Steel Works, Bolton, were responsible for the steel sliding doors

Switchboard Works.

The general contractor was J. G. Gray, Broad Street, Coventry. Messrs. The Trussed Concrete Steel Company, Limited, 22, Cranley Gardens, S.W.7, were the reinforced concrete engineers. The steel sashes and internal steel partitions were supplied by Williams & Williams, Limited, Reliance Works, Chester. Marbello, Limited, Crescent Wharf, Birmingham, were responsible for patent flooring. The patent roofing was by the well-known and widely tested firm, Ruberoid Company, Limited, 81-83, Knightrider Street, E.C.4. Terrazzo was supplied by Diespeker & Company, Limited, 60, Holborn Viaduct, E.C.1. S. W. Francis & Company, Limited, 64, Grays Inn Road, W.C., were responsible for the well-balanced lettering. Internal wire partitions, the Crittall Manufacturing Company, Limited, Braintree, Essex. The General Electric Company, Limited, supplied their own electric lighting specialities. Tiling and glazed brickwork was supplied by Carter & Company, Limited, Poole, Dorset. The asphalte work was carried out by the Limmer & Trinidad Lake Asphalt Company, Limited.

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NEW MOTOR FACTORY AT MAIDSTONE FOR TILLING-STEVENS, LTD. Messrs. Wallis, Gilbert & Partners, Architects.



GRINDING SHOP.



MACHINE SHOP.

SWITCHWORKS WORKS, WITTON, BIRMINGHAM, FOR THE G.E.C. Wallis, Gilbert & Partners, Architects.

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New Factory at Acton.

This building was erected for Messrs. D. Napier & Sons, Ltd., and among the various firms employed were Messrs. Patman & Fotheringham, Ltd., general contractors, Park Street, Islington, N.1. Messrs. The Trussed Concrete Steel Co., Ltd., 22 Cranley Gardens, S.W.7, were the reinforced concrete engineers. Messrs. Williams & Williams, Reliance Works, Chester, supplied the steel window sashes. The patent roof glazing was supplied by Luxfer Prism Synd., 16 Hill Street, Finsbury. All the asphalt work was executed by the Limmer and Trinidad Lake Asphalt Co. Ltd., 34 Victoria Street, S.W. The lifts were supplied and fitted by Medway Safety Lift Co., Ltd., 35 Surrey Street, Strand, W.C. Stuart's Granolithic Co., Ltd., 63 Lincoln's Inn Fields, W.C., supplied the granolithic paving and staircases.

New Motor Factory at Maidstone.

This building was erected for Messrs. Tilling-Stevens, Ltd., and among the various firms employed were Messrs. Patman & Fotheringham, Ltd., Park Street, Islington, N.1, general contractors. Messrs. The Trussed Concrete Steel Co., 22 Cranley Gardens, S.W.7, were the reinforced concrete engineers. Messrs. Williams & Williams, Reliance Works, Chester, supplied the steel window sashes. Lifts were fitted and supplied by Medway Safety Lift Co., Ltd., 35 Surrey Street, Strand, W.C. Messrs. Norris & Dutton, Ltd., 11/12 St. Andrew's Hill, Queen Victoria Street, E.C., were the heating engineers. Shafting fittings were supplied by Building Products Co., 44/46 King's Road, Sloane Square, S.W. The asphalt work was executed by the Limmer & Trinidad Lake Asphalt Co., Ltd., 34 Victoria Street, S.W.

New Chocolate Factory, Everton, Liverpool.

This building was erected for Messrs. Barker & Dobson, Ltd., and among the various firms employed were Messrs, W. H. Davey & Co., Ltd., Bank Chambers, High Street. Runcorn, general contractors. Messrs. The Trussed Concrete Steel Co., Ltd., 22 Cranley Gardens, S.W.7, were the reinforced concrete engineers. Steel sashes were supplied by Williams & Williams, Reliance Works, Chester. Shafting fittings were carried out by Building Products Co., 44/46 King's Road, Sloane Square, S.W. Messrs. Norris & Dutton, Ltd., 11/12 St. Andrew's Hill, Queen Victoria Street, E.C., were responsible for the entire heating plant and installation. Messrs. Haywards, Ltd., 187 Union Street, Borough, S.E., supplied the collapsible gates and fire escape staircases. Lifts were supplied by the Express Lift Co., Ltd., 9 Greycoat Street, S.W.

British Exhibit at the Salon.

The following awards were made by the Société des Artistes Français in the Section of Architecture :—

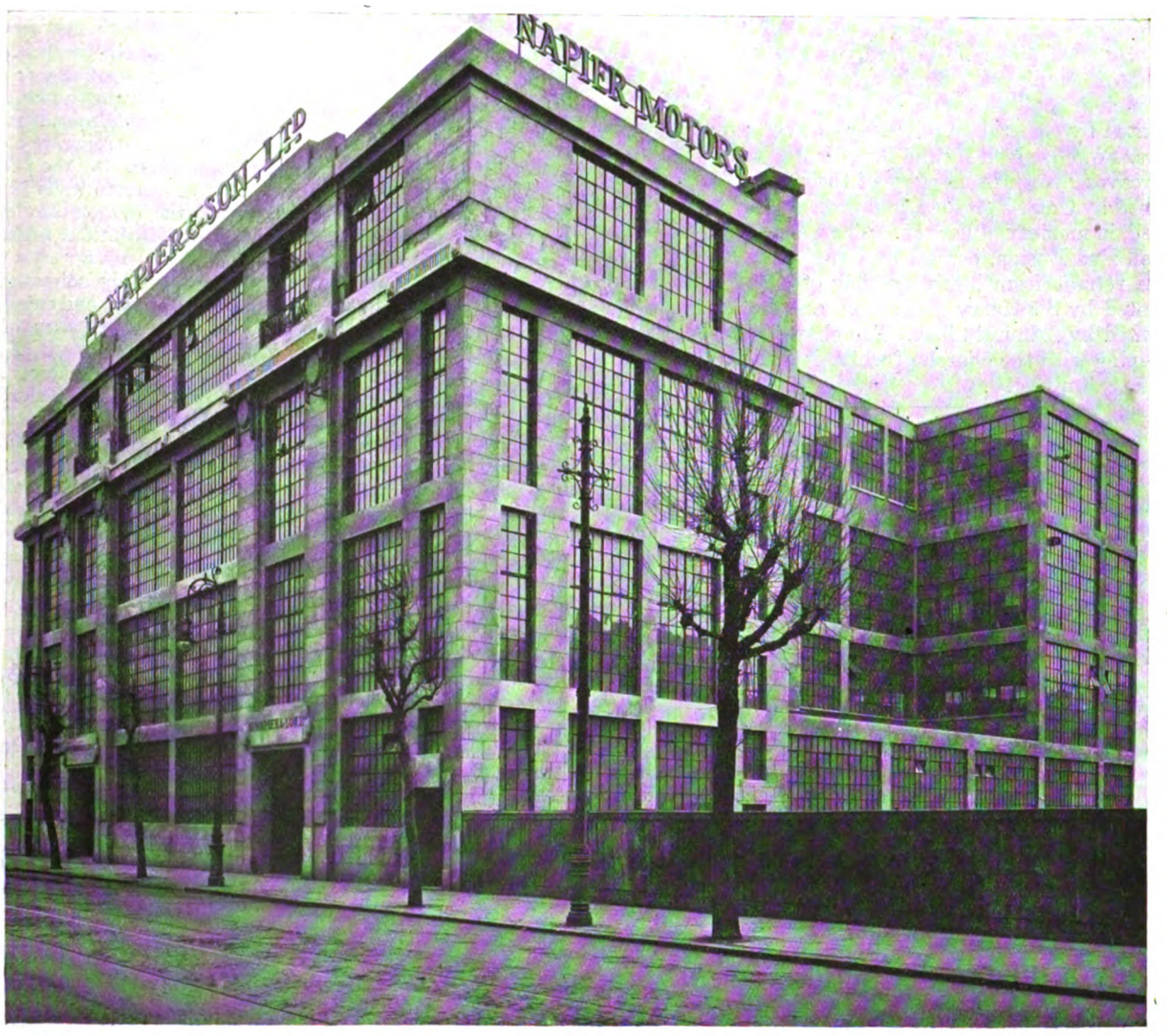
Gold Medals : Sir John James Burnet and Mr. John William Simpson.

Silver Medal : Mr. Edward Guy Dawber.

Bronze Medals : Sir Edwin Landseer Lutyens, Mr. Harold Chalton Bradshaw, and Mr. Alexander N. Paterson.

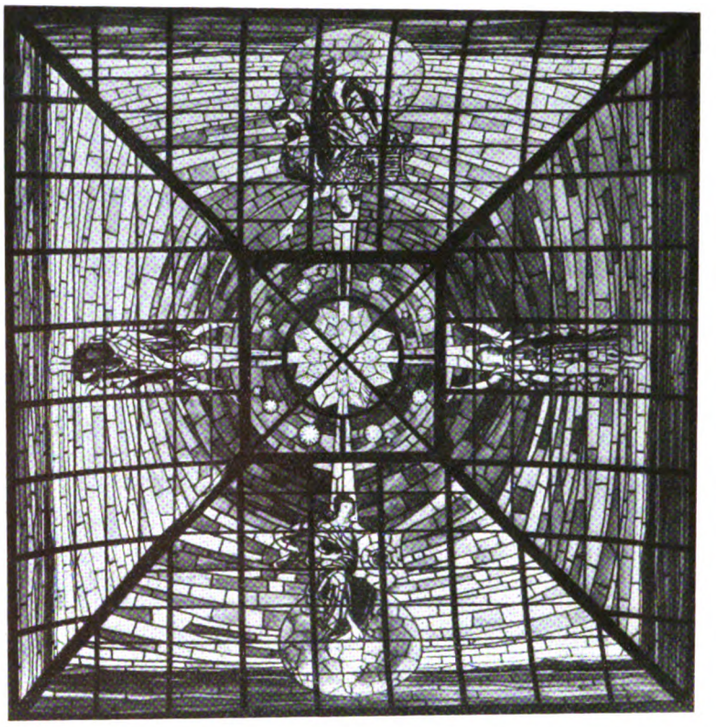
Honourable Mentions : Mr. Arthur Joseph Davis, Mr. Detmar Blow, Mr. Giles Gilbert Scott, Mr. Henry Philip Cart de Lafontaine and the late Mr. Ernest Newton.

The " Building Guildsman " for June states that the maximum value of contracts in hand by Building Guilds on April 30 was £1,428,938. The amount received on these is £849,771. Mr. Malcolm Sparkes reports satisfactory results from the Guild's exhibit at the recent building exhibition at Olympia.



NEW MOTOR FACTORY, ACTON.
Messrs. Wallis, Gilbert and Partners, Architects.

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GLAZING OF DOME, BRITISH PAVILION, RIO DE JANEIRO CENTENARY EXHIBITION

Chapel of Remembrance, St. Michael's, Chester Square.

This chapel has been erected as a war memorial from the designs of Mr. G. Gilbert Scott, R.A.; at a cost of over £10,000, Messrs. Goddard, of Farnham, being the contractors employed. Many gifts have been made, and these include a picture of St. Michael, ascribed to Vandyke, presented by General and Mrs. Broadwood; a window, by Messrs. Powell, given by the late Sir Alexander and Lady Hargreaves Brown in memory of their son; a silver cross, designed by Omar Ramsden, and presented by Mrs. Edward Tufnell, in memory of her son. The war flags given include a small Red Ensign, carried by General Sir Henry Wilson in the retreat from Mons, the flag of the Fourth Army, presented by Sir Henry Rawlinson, and an American flag, presented by Admiral Sims. The chapel is designed to be in keeping with the church of which it forms a part, and is illustrated on p. 490.

"The Architect" Fifty Years Ago.

JUNE 29, 1872.

A FRENCH VIEW OF OXFORD.

M. Viollet le Duc says that the impressions which he received at Oxford were sufficiently deep to warrant his communicating them to the public; but he modestly confines himself to narration, and leaves conclusions to others. He is contented, as he says, to present the salient points and the general aspect of these institutions as they appeared to his eyes and mind.

Oxford, he says, is built on a beautiful plain at the confluence of the pretty rivers Cherwell and Isis. The first thing which attracts the attention on nearing the city is the innumerable quantity of towers and steeples which rise above the houses; these are the campaniles of the University and of the nineteen colleges, its satellites. The monotony of the Perpendicular architecture is broken by masses of noble trees, throwing their figures over the rigidity of the monumental lines. Meadows which resemble the fattest pastures of the valley of the Auge, but of a more intense green, supply the ground of the landscape. If we seek for a French town having some resemblance to Oxford, we should select Caen. The interior aspect of Oxford again recalls to mind the old Norman cities with their sharp gables and façades, in which the upper storeys stand out in *encorbellement* over the ground floor. The edifices have a monastic physiognomy, and their severe and monastic aspect is still further augmented by the quality of the materials of which they are constructed. The Oxfordshire stone rapidly assumes a grey and mournful colour, and, moreover, it exfoliates and crumbles away under the action of rain and frost, so that all the buildings have the appearance of being attacked by some cutaneous disease. The sculpture of the time of Henry VIII., and the heavy mouldings of the seventeenth century, drop away in scales, and give the edifices the appearance of decay. A church porch in High Street, in Roman style, not more than 200 years old, is so eaten away, that with the exception of the colour, it looks like one of the ancient ruins of the Campo-Vacino. This premature age has, however, nothing to do with neglect; these ruins are cleaned and well cared for; active means are taken to stay the progress of the leprosy; everything around these sombre walls is clean and neat, and in the interiors, where the ravages are of less extent, you detect everywhere the marks of constant solicitude, and the signs of wealth and prosperity.

The principal streets of Oxford are tolerably animated and bordered by shops, amongst which those for books and engravings are conspicuous. Although the city has no industry of any very great importance, there is a considerable amount of retail trade, fed by a large number of visitors. There is, however, no noisy activity; there are no cries and no tumult. Oxford is a little like London on a Sunday. The professors and the students circulate in the streets, wearing the gown and the traditional cap with the square top falling on one side of the head.

Correspondence.

To the Editor of THE ARCHITECT.

Relief of Housing from Taxation.

SIR,—Although any effort to bring housebuilding back to economic possibility is most welcome, it is a fatal mistake to make the exemption of houses from rates a political question, especially at the present time when sound principles, in place of governing politics, are sacrificed to political expediency.

The interests of all shades of political thought are identical, whether realised or not on this question.

If exemption, or partial exemption, takes place, landowners will not be the last to take the chance of developing their own property which, under present conditions, is impossible.

Established and sound economic conditions will do infinitely more to open up land for development than any coercive taxation, which is as sure to be disastrous as the Land Duty clauses of the "People's Budget."

The whole building trade must appreciate the V.C.T.K.V.'s action, but it is to be sincerely hoped that common sense will not give way to political fads or fancies. Even in this "advanced" age the horse must draw the cart.—Yours, &c.,

E. G. HOLTOM.

Holt, Norfolk.

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Modern Methods in Building Construction.—XXIII.*

By Albert Lakeman, M.S.A., M.C.I.

WATERPROOFING.

The subject of waterproofing having been dealt with in a general way, some of the particulars and claims of the suppliers of special materials can be given, as these are essentially a modern development in construction methods. The chief merit of most of the waterproofing methods on the market to-day is the simplicity of application, and this fact has led to an extensive use which has encouraged many firms to put alternative materials on the market. The use of these special ingredients is usually a cheaper method than the adoption of the older type of membrane waterproofing, as the cost of manufacture is generally comparatively small and they can be supplied at a reasonable price which at the same time gives a fair profit to the manufacturer. The cost of application is almost negligible when it is simply a question of adding ingredients to the constituents forming the mass of the structure.

"Colemanite" is a liquid chemical compound supplied by the Adamite Company, Limited, of Regent House, London, and it is added to the gauging water used in the mixing of concrete or cement rendering, thus coming under the integral method. It is claimed that this compound not only waterproofs the material, but also increases the strength and renders it very hard and wear-resisting when used on floors. This material has been made in America by the Anti-Hydro Waterproofing Company of New York for about eighteen years, and it is interesting to note that the author, while in the States, made some extensive investigations into the merits of floor hardeners and waterproofers in use there, and found that this material ranked very high as a hardener when the compound was mixed with the constituents during execution, and these investigations covered actual work performed as distinct from laboratory tests. The cost of the liquid compound is 10s. per gallon, and a gallon of "Colemanite" roughly suffices for 400 lb. of cement in actual use. "Colemanite" has a calcium base, and it is claimed that it chemically combines with the cement and improves with age. It fills the voids in an ordinary cement compound with a special cement solution, which crystallises at the same time as the cement, integrally forming a hard, insoluble silicate. It is neutral to cement, and when added in one part to ten parts of water used in gauging Portland cement mixtures it has the effect, without retarding the setting, of rendering the cement, in all kinds of masonry, impervious to water, moisture, frost, gas, oils, grease and odours. It is also claimed that it causes the cement to harden quicker and actually increases its ultimate strength, and it excites and brings into service all the cohesive possibilities of Portland cements, which in themselves are the most efficient waterproofing mediums. A good example of the application of this material in modern work is afforded in Messrs. Selfridge's new building in Oxford Street, where the contractors were Messrs. F. D. Huntingdon, Limited, of Hanover Square, W. After some investigation it was decided to use "Colemanite" for waterproofing the retaining wall around the new premises, this wall being 600 feet long and from 45 feet to 75 feet high. Part of this wall in elevation can be seen in fig. 133, which shows the work of constructing the basement floor in progress. The contractors stated that the saving by the use of the integral method as compared with the use of asphalt on the outside of the wall was considerable, as the latter would have necessitated about 2,000 yards more excavation and a large amount of extra timbering would have been required, while the actual cost of the "Colemanite," using one gallon to each cubic yard of concrete, was considerably less than the relative cost of the asphalt. It was found that the watertightness of the work was quite satisfactory, as it kept all water out of the excavation, and this in spite of the fact that it was subjected to an unusual strain during the progress



Fig. 133.—RETAINING WALL AT MESSRS. SELFRIDGE'S PREMISES WATERPROOFED WITH "COLEMANITE."

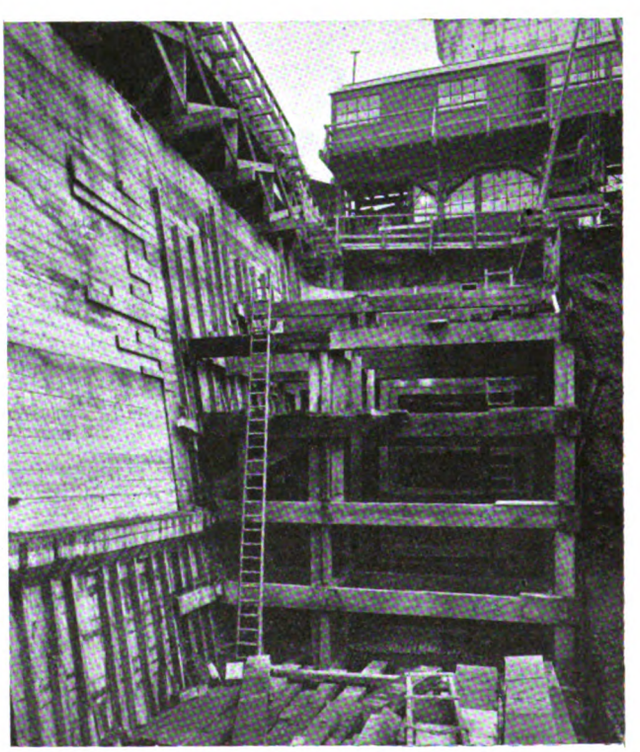


Fig. 134.—RETAINING WALL AT MESSRS. SELFRIDGE'S PREMISES.

* PART I.—I. Introduction, Steam shovels, Jan. 13; II. Steam shovels, Trench diggers, Jan. 20; III. Grab buckets, scrapers, Jan. 27; IV. Drag-line excavators, Feb. 3; V. Derricks and cranes, radial loader, paving-breakers, Feb. 17; VI. Surplus Soil Transport (Hand Labour), Feb. 24; VII. Surplus Soil Transport (Horse-drawn wagons, Steam-driven wagons), Mar. 3; VIII. Surplus Soil Transport (Steam-driven wagons), Mar. 10; IX. Surplus Soil Transport (Steam-driven wagons, Petrol wagons, Narrow-gauge track with wagons), Mar. 17; X. Surplus Soil Transport (Narrow-gauge track with wagons, Trucks on Standard-gauge track, Electrically-driven trucks and vehicles), Mar. 24.

PART II.—XI. Foundation Work (Ordinary soils, Soft soils), April 7; XII. Foundation Work (Soft soils), April 17; XIII. Foundation Work (Soft soils), April 21; XIV. Foundation Work (Soft soils), April 28; XV. Foundation Work (Soft soils), sheet piling, May 5; XVI. Foundation Work (Soft soils), steel-sheet piling, May 12; XVII. Foundation Work (soft soils), steel-sheet piling, pumping, May 19; XVIII. Foundation Work (Soft soils), pumping, May 26; XIX. Foundation Work (soft soils), foundation piles, June 2; XX. Foundation Work (soft soils), foundation piles (*cont.*), June 9; XXI. Foundation Work (soft soils), foundation piles (*cont.*), June 16; XXII. Foundation Work (soft soils), Waterproofing, June 23.

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of the work by the bursting of a water main in the immediate vicinity of the wall. An illustration of a portion of this wall, which will indicate the height, is given in fig. 134. It is of interest to note in connection with the work that concrete cubes of identical proportions made with and without the use of "Colemanite" were submitted to Messrs. David Kirkaldy and Sons for test, and the results as regards crushing strength, both at seven days and 28 days, showed that the cubes mixed with the liquid chemical compound were appreciably stronger.

Another example quoted by the Adamite Company, Limited, as proof that the claims for waterproofing qualities are justified, is that of a boiler house cellar where the floor level was about 4 feet below the water level, and where the walls were formed with two 4½-in. walls with asphalt membrane between. Although this construction should have been watertight, it was found that the leakage of water was considerable, and, in fact, the cellar proved unusable. The contractors who were called in to make the cellar watertight broke through the bottom of the structure and formed a sump immediately outside the building for pumping. Whilst the pumping was in operation two renderings were made on the interior with the use of "Colemanite," and after two days' setting the pumping operations were ceased, and the result noted was perfect. An inspection eighteen months later showed the cellar to be quite dry, although the test was undoubtedly a severe one. Such examples will, of course, speak well for the qualities of the material. Wall coatings, when applied on the inside, should be ⅝ inch in thickness from the floor level, where they should be properly coved and bonded to the floor and carried up at least 1 foot above grade level. Floor toppings should be 1 inch in thickness, and will serve the double purpose of waterproofing agent and dustless wearing surface.

Concrete tanks or sumps may be waterproofed either through the mass of the concrete or by lining the inside with a ¾-in. rendering coat of one part Portland cement and two parts sand gauged with a solution of one part of "Colemanite" and ten parts water. It is considered that if the walls and floor of the structure average more than 14 inches in thickness, the cost for labour and material for applying the rendering coat will be less than the cost of using the solution throughout the mass. The integral method applied to the whole mass, however, is to be preferred, as it is more likely to be able to resist a good head of water. Where the material used for the walls is any other than concrete, then the application of a rendering coat is the only one possible. Where the tank has to be lined, and it is subject to the action of acids and alkali conditions, the Adamite Company specify that the work must be carried out in the following manner: (1) Carefully hack the surface of the work to be treated to ensure a clean-rough surface, and remove all of the loose particles from the inside of the pit; (2) thoroughly wet down the prepared surfaces with clean water; (3) mix a grout by stirring into a solution of one part of "Colemanite" and three parts of water enough Portland cement to make a thick creamy consistency. Apply the grout with a brush to the prepared surface and floor of the pit, and (4) immediately after the grout has been applied apply a plaster coat made of one part Portland cement, one part sand, and one part of gravel or flinty grit which has been wetted down with a solution of one part "Colemanite" to each eight parts of water. The consistency of this plaster coat should be so stiff that the mortar can be worked like putty. This plaster coat should be about ¾ inch thick, and should be coved and bonded to the floor. After the plaster has been applied and has begun to set, the pit should be filled with water, and the water should be permitted to remain in the pit for 36 hours, after which the pit should be pumped out and permitted to thoroughly dry out. This drying out process will take from four to ten days, according to the conditions prevailing. The makers of "Colemanite" also claim that it can be successfully applied in making a concrete patch bond where existing concrete walls let in water, and instructions are given for this work.

The concrete should be cut away at the point of leakage in the first instance, and a slush coat is then made, consisting of one part of the compound, three parts water, and enough Portland cement to make a creamy paint. The slush coat is then applied to the surface that has been exposed by the cutting away, and after this preparation the surface is made good with a mixture of one part Portland cement to two parts sand gauged with "Colemanite" and water in the proportions of one to ten. This concrete patch method has been successfully adopted in America to buildings that have shown leakage after being erected several years, and a concrete barge which had a hole knocked in the bottom was also repaired by this method, after which it was again put into commission.

Another very well-known compound used for waterproofing purposes is "Pudlo" Brand waterproofing powder, manufactured by Messrs. Kerner-Greenwood and Company, Limited, of King's Lynn. This material is supplied in powder form, and it is mixed with the dry Portland cement in certain specified proportions according to the nature of the work. Some of the claims made are that the cement can be made permanently waterproof without impairing its nature, and the voids in cement mortar and cement concrete are completely filled and the strength of concrete is slightly increased.

It is also claimed that the appearance of the work is not affected, the cement works with greater ease, the waterproofing quality of the product never deteriorates, there is nothing injurious to health, and there is no odour. Messrs. Kerner-Greenwood and Company state that there are three main reasons why their product makes cement resistant to water, as follows:—(1) The chemical substances of which it is composed are balanced so as to react with the constituents of Portland cement. A new insoluble siliceous compound is thereby evolved, which spreads and completely fills every space, even the most minute void. (2) During the drying process this siliceous substance forms an impervious surface to the cement work, thus giving dual security. (3) A distinction in cement mixtures waterproofed in this manner is that the granules of cement and also the aggregates are more densely placed than they are in ordinary cement work, thereby more thoroughly excluding water. They are, as it were, carefully packed into positions similar to that shown by Nature in dense granite rock. It is interesting to note the reasons put forward by the manufacturers for supplying their product in powder form in preference to a liquid or paste, which are as follows:—(1) The liability to errors in mixing with a liquid, owing to its unstable nature. (2) The difficulty of amalgamating a liquid with a powder like cement compared to amalgamating a powder with a powder. (3) Less time is taken in mixing a powder than a liquid or paste. "Pudlo" Brand powder is mixed with the cement, the sand being added after. If it were a liquid or paste, it would require adding to the combined cement and sand, and that would require three or four times more labour in mixing. (4) The loss of a liquid or paste through evaporation. (5) The difficulty of transporting a liquid or paste, both on account of portability and extra weight.

If these advantages are analysed, it may be considered that they are somewhat overrated, because in the case of items 2 and 3, if a liquid is adopted, this can be mixed with the gauging water and the mixing of the waterproofing agent with the cement is therefore performed when the hydrating of the cement is carried out without any additional labour. As regards item 4, a powder is liable to loss not by evaporation, but by careless handling and by the action of the wind, as it is well known that large quantities of cement are lost in this manner. The ease of transporting a powder is certainly an advantage as compared with a liquid, but the other points raised are not, in the author's opinion, convincing.

Many tests have been made by eminent authorities on the "Pudlo" Brand waterproofer, both as regards the effect on the strength of concrete and mortar when the material is used and on its power to render the work so treated impermeable to moisture, and in all cases the results of these tests are favourable, and they are so extensive that they will convince the architect or engineer of the merits of the

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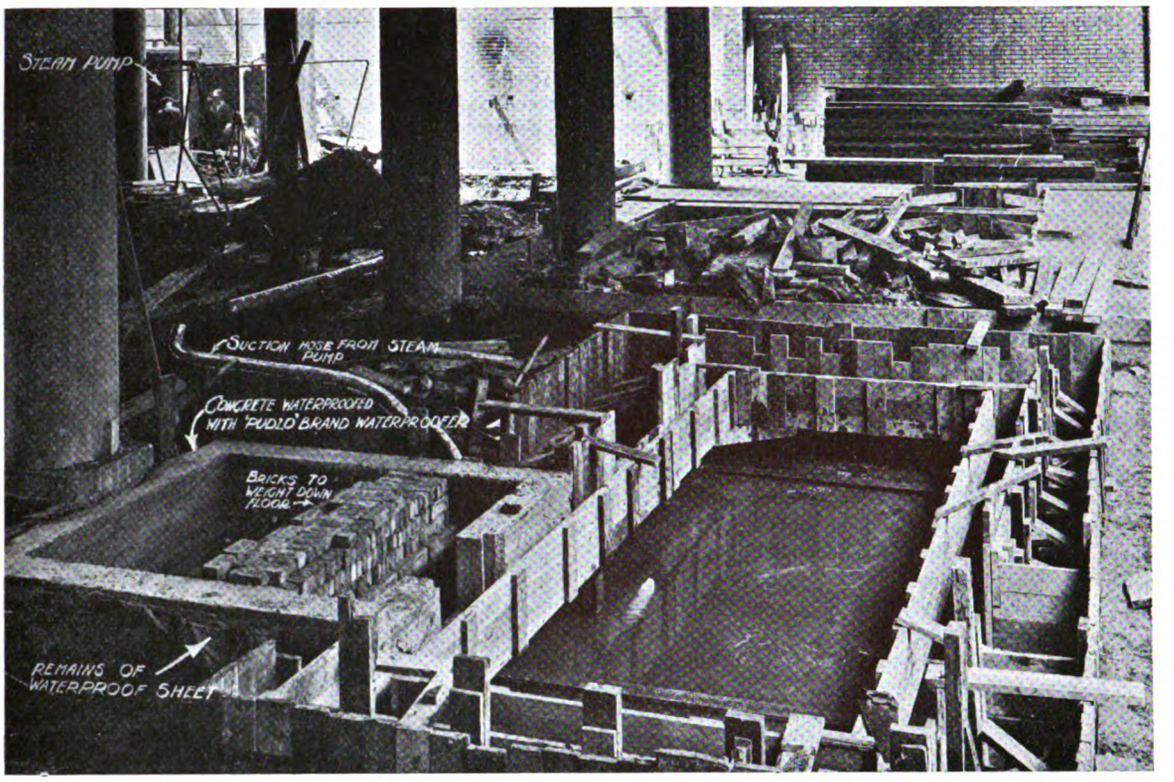


Fig. 135.—INSPECTION PIT (WATERPROOFED WITH "PUDLO"). AMALGAMATED PRESS, LTD., SOUTHWARK.

material. The author personally used this waterproofer in connection with a munition factory where some high towers had to be constructed with steel framing filled in with thin hollow blocks of a light nature, owing to the special requirements of the case. The situation was a very exposed one and the blocks were quite incapable of keeping out the weather, and it was decided to render the external faces with cement and sand treated with " Pudlo " Brand waterproofer. The work was carried out and the result was perfectly satisfactory, as subsequent examinations on many occasions proved that no moisture penetrated the walls. The same material was also adopted for underground tanks which were required to be watertight in connection with this scheme, and no failure occurred.

An interesting example of integral waterproofing is that provided by the work in the basement of the premises of the Amalgamated Press, Limited, in Southwark, for which Messrs. H. O. Ellis and Clark, F.S.A., are the architects. The site of the building is within 150 yards of the River Thames, and the floor level of the basement is 10 feet below the high tide level.

Considerable difficulties had to be met during the foundation work owing to the large quantity of water in the gravel subsoil, which was acting under a considerable head. Difficulty was particularly experienced in the formation of some inspection pits 5 feet below the general basement floor level, which were required for the purpose of access to a large number of printing machines which were to be installed in these positions. After consideration of various waterproofing methods it was decided to construct the pits of reinforced concrete and waterproof the concrete integrally with " Pudlo " Brand powder. The sides and

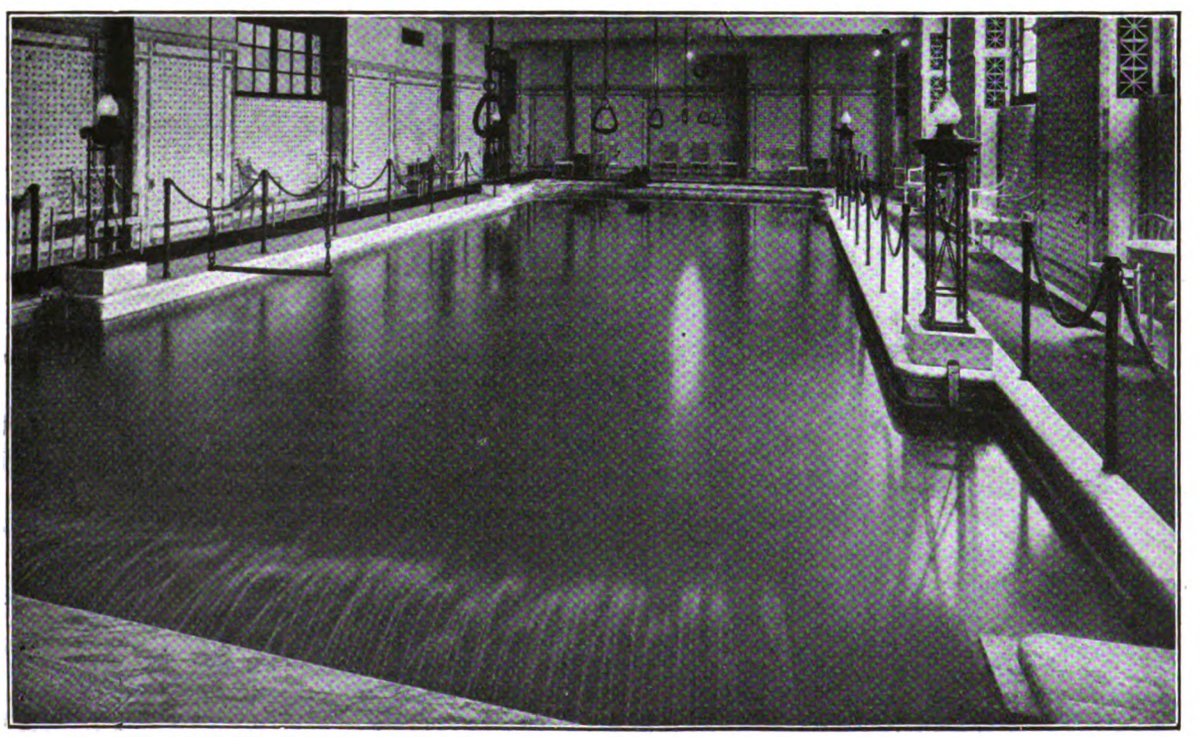


Fig. 136.—SWIMMING BATH (WATERPROOFED WITH "PUDLO"), ADELPHI HOTEL, LIVERPOOL.

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bottoms of the pits are 12 inches thick with suitable reinforcement, and 3 lb. of the waterproofing powder was mixed with every 100 lb. of Portland cement. The method of executing the work is shown in fig. 135, and it will be observed that special precautions had to be taken to prevent the washing away of the cement while the initial set was taking place. On the surface of the finished excavation a waterproof sheet was laid, the edges of the sheet being turned up so as to form a tray, and the waterproofed cement concrete was then deposited on the surface of this waterproof sheet. Pumping operations were carried on continuously, with the suction taken to a sump outside the pit and at a lower level to keep down the water pressure as much as possible. It was found practically impossible entirely to localise the flow of water to the sump, and the waterproof sheet was therefore adopted to prevent the wash and pressure of the water directly on to the newly placed concrete, which would be likely to cause weakness and possible failure. When the floor of this particular pit was sufficiently hardened it was loaded with 2,500 bricks to prevent the structure being lifted by the pressure of water when the pumping ceased. The waterproofing was found to be perfectly satisfactory, and no rendering was necessary to the insides of the pits, although the test was a severe one. General specifications for waterproofed concrete, plaster and general work are issued by the manufacturers of the "Pudlo" Brand cement waterproofer, and the percentage of the powder used with the cement will vary from 1 to 5 per cent. in weight, but the latter amount is the maximum for any work. It is impossible to lay down any definite rule without a knowledge of the conditions, but for ordinary concrete subjected to a varying flow of water and about 9 inches thick the amount of "Pudlo" Brand powder would be 5 per cent., while if the concrete is to be rendered the rendering would have 5 per cent. incorporated and the mass of the concrete 2 or 3 per cent. Where used for rendering on brickwork the percentage will vary from 3 to 5 per cent., and the cost of the waterproofing per yard super will vary from 6d. to 1s. 1½d. according to the thickness and amount used. This cost is based on the price of the powder at 1s. per lb. Many other particulars and details of the methods of application could be given, but as these are of a general nature it is not proposed to deal further with them.

An interesting example of the application of this waterproofer is given in fig. 136, which shows the swimming bath at the Adelphi Hotel, Liverpool. This bath is suspended over other rooms, so that any leakage would instantly be apparent, and it forms a practical test of "Pudlo" Brand cement waterproofer.

(To be continued.)

Competition News.

The Lytham Urban District Council, as will be seen from our advertisement pages, announce that the printed conditions of the competition for their proposed public hall and baths will be ready on July 7. Copies can be obtained on application to Mr. C. A. Myers, Clerk to the Council, and payment of £1 1s. deposit. The premiums to be awarded by the assessor, Mr. A. W. S. Cross, M.A., V.P. R.I.B.A., are 100, 50, and 25 guineas.

The President of the Royal Institute of British Architects has nominated Professor S. D. Adshead, F.R.I.B.A., as assessor in the Ramsgate Lay-out Competition.

Mr. J. W. Simpson, F.R.I.B.A., who inspected the site of the proposed Art Gallery in the Hull City Square on the 22nd inst., recommends that there should be a single competition open to all architects. He thinks that a preliminary sketch competition, with a subsequent final stage by selected competitors, would be inadvisable. Having ascertained that the intention was to provide accommodation in the new building for both the permanent collection and loan collections, he expressed doubt as to whether double the wall space of the present Gallery could be provided. The Committee having the work in hand agreed with Mr. Simpson's suggestion.

A competition is to be held in connection with the proposed war memorial at Dewsbury. Premiums of £120, £50, and £30 will be awarded. Professor C. H. Reilly, O.B.E., M.A., F.R.I.B.A., in his capacity of advisor, has prepared a rough scheme for a statue to be erected in front of the Town Hall.

The Rome Scholarship in Architecture, 1922.

On the recommendation of the Faculty of Architecture of the British School at Rome, the Commissioners of 1851 have awarded the Rome Scholarship in Architecture for 1922 to Mr. Stephen Welsh, A.R.I.B.A., and on the recommendation of the same body the Henry Jarvis Studentship, offered by the Royal Institute of British Architects, has been awarded to Mr. George Checkley, A.R.I.B.A.

Mr. Stephen Welsh is a student of the University of Liverpool. He is thirty years of age, and was born at Forfar, where he served his articles. He afterwards acted as architect's assistant in Glasgow for two and a half years, during which time he attended the Glasgow School of Architecture. He served during the war for over four years with the Royal Engineers. Mr. Welsh spent some time as an assistant in the office of Mr. Thomas Hastings.

Mr. George Checkley is twenty-seven years of age, and was born at Akaroa, New Zealand. He is also a student of the University of Liverpool, which he entered with a New Zealand Government scholarship, after serving for three and a half years with the New Zealand Expeditionary Force.

The Rome and Jarvis Scholarships are of the value of £250 a year, and tenable at the British School at Rome for a period of three and two years respectively. Both awards were open to British subjects under 30 years of age, with an allowance for war service.

The Jarvis Studentship is offered to the student or Associate of the R.I.B.A. who passes next in order of merit to the winner of the Rome Scholarship.

The competition, which is conducted by the Faculty of Architecture of the British School at Rome, was in two stages.

The results of the preliminary competition were exhibited at the Royal Academy in February last at the annual exhibition of the British School. Nine of the competitors in the preliminary round were selected for the final stage, which lasted for a period of ten weeks, and was preceded by a thirty-six hours' *en loge* test, the subject of the competition being a design for a Royal Academy. The winning designs, together with those of the unsuccessful finalists, will be publicly exhibited for a fortnight at the R.I.B.A., as from July 17.

It is interesting to observe that the Jarvis Studentship has been awarded in two successive years to New Zealanders, Mr. E. W. Armstrong, of Auckland, being the winner of the Jarvis in 1921.

Forthcoming Events.

Saturday, July 1.—Northern Architectural Association Club. Sketching Meeting at Lumley Castle and Chester-le-Street Church.

Monday, July 3.—Royal Institute of British Architects. Meeting at 9, Conduit Street, W. Paper by Dr. Thomas Ashby entitled "Recent Excavations at Rome." 8 p.m.

Tuesday, July 4.—Sociological Society. Meeting at Leplay House, 65, Belgrave Square, S.W. Paper by Mr. Stanley C. Ramsey, F.R.I.B.A., entitled "Regional and Vocational Influences in Architecture." 8.15 p.m.

— Somersetshire Archæological Society. Annual Meeting at Clevedon, (July 4–6.)

Wednesday, July 5.—National Federation of Building Trades Employers of Great Britain and Ireland. Half-yearly general meeting in the Mansion House, Dublin, (July 4–6).

— Royal Archæological Institute. Meeting in the apartments of the Society of Antiquaries, Burlington House, Piccadilly, W. Papers by Mr. F. C. Eeles, entitled "The Tomb of Abbot (?) Hugh, 1224, at St. Augustine's Abbey, Canterbury," and "Peltham Church, near Canterbury," 4.30 p.m.

Saturday, July 8.—Edinburgh Architectural Association. Annual excursion to Stirling Parish Church, Castle, etc.

At the annual general meeting of the Scottish National Building Trades' Federation (Employers), Mr. James A. Baxter, Glasgow, was re-elected President; Mr. David A. Angus, Edinburgh, Senior Vice-President; and Mr. John Livingston, Glasgow, Junior Vice-President. At the annual outing of the members a company numbering 500 enjoyed an all-day sail on the Queen Alexandra round Arran and the Kyles of Bute.

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Royal Institute of British Architects.

The sixteenth general meeting (ordinary) of the Royal Institute was held at 9 Conduit Street, W., on Monday evening, June 26. Mr. Paul Waterhouse, M.A., president, was in the chair.

As this was Royal Gold Medal Night, there was a particularly large and important attendance of members and guests. Among those present were: Mr. Thomas Hastings (Royal Gold Medallist) and Mrs. Hastings; Mr. Post Wheeler (representing the American Ambassador) and Mrs. Post Wheeler; Mr. Robert Skinner (Consul-General for the United States) and Mrs. Robert Skinner; The Rt. Hon. the Earl of Crawford and Balcarres, K.T., P.C.; Sir Harry Brittain, K.B.E., M.P., and Lady Brittain; Sir Aston Webb, P.R.A., and Lady Webb; Sir Reginald Blomfield, R.A., and Lady Blomfield; Sir Edwin Lutyens, R.A.

Presentation of Royal Gold Medal.

Mr. Paul Waterhouse, president, delivered the following address:—

It will be of very little interest to Mr. Hastings to be told that he has been the author of 50 works of really first-class importance, that six or more of these were of parliamentary or municipal consequence, that the remainder are libraries, university halls, banks, railway stations, hotels, bridges, monuments, as well as vast town-planning schemes; or to be reminded that the buildings so enumerated comprise only those which have been thought conspicuous enough to put into a list. I have little doubt but that the unrecorded remainder would be sufficient to make two or three European architects contentedly rich and reasonably famous.

What may affect Mr. Hastings, and what does affect us, is the supreme significance in modern history of forty years' work such as his.

I am perfectly sure that the opening words of any reply which Mr. Hastings is good enough to give us to-night will be a modest disclaimer. He will say that we are asking our King to honour his epoch and his country, and that the allocation of this honour to his individual personality is a mere accident. Let him say so. He will not thereby shield himself from the direct attacks of our respectful homage, nor will he dilute or divert in any degree the enthusiasm with which we acclaim him as the man of the hour.

It is perfectly true that we are consciously applauding America of the twentieth century. But what of that? It is the architects of America who make American architecture, and in searching for a true and significant example of that group of creators we have—with very great, very careful deliberation—thrown our choice on Mr. Hastings. I am sure we will stand firm in support of our own judgment. Mr. Hastings can diffuse, as much as he pleases, our compliments among his able countrymen, so long as it is on his neck that the King's Gold Medal crosses the Atlantic, and so long as he is our most respectfully chosen ambassador.

The very fact that Mr. Hastings is surrounded in the States by confrères whose aims are his own, the very fact that there are others in his favoured country who may rightly be classed as of Gold Medal rank, only enhances, I hope, the honour which we try to pay to him and through him to his colleagues, many of whom are men to whom his example, his rivalry, and his instruction have meant much.

I make no apology for being, by the accident of the Presidency, the man through whose hands the medal passes from its gracious giver to its worthy receiver. Rather do I with complete immodesty rejoice that so great a piece of good luck falls in my way, for I have wanted, above many other wants, to stand face to face with a great American architect and tell him exactly what I think of the present-day school of American design in architecture.

I believe, with a very profound belief, that it represents a most significant fact in the history of our art. I do not say "of our age," but of that ageless company of centuries which, viewed from Art's point of view, stand not behind one another in series, but abreast. There is a reality called Eternity. Some define it as time with the beginning and the end removed. They define it falsely. It is the great Now. It lies with architects more than with other artists, it lies with artists more than with other men, to realise (and this is a realisation shared with religion) that the brotherhood of man has its extension forth and back in time no less than East and West in space.

This is not wandering on my part. I could make it plainer by detaining you with a history of civilisation (if I were capable of it). I would sooner try to make it plain by talking about the United States.

There is much heretic talk of progress in architectural design. There *is* progress, of course; but there is much more evidence of the sham progress which is no friend of art at all. The horrible experiment to which a certain old-world country is submitting herself, the experiment of attempting an architecture "free from historic style," would be a nightmare to Europe and a grim menace to all lovers of the beautiful were there not a bright hope that so foul a conflagration will soon burn itself out.

Let us turn happy eyes to America and take to our hearts the remarkable testimony she gives to the divine sovereignty of tradition.

America is of all countries the land whose civilisation was unprejudiced—a vigorous population on virgin soil found itself free to look forward without any obligation to look back. There was the country of all countries in which could flourish unhindered and undismayed that traditionless architecture which is the dream of some of our art philosophers.

But what has come to America in her freedom? What, after the early flutterings of untried wings, has been the direction of her flight? What star guided her? What voice prompted her? None other than the star of that civilisation which leads and has led old Europe, no voice but the voice of the ancients.

Ladies and gentlemen, were there ever wanting some proof that our happy bondage to the ways of our forefathers is not a bigot's delusion, but a free man's song of liberty, that proof is given to us by the choice of America—or shall I say rather by America's joyous submission to the golden chains in which we also labour?

In the name, Mr. Hastings, of our gracious King, and as the spokesman of my brother architects of England, I transfer to you the greatest testimony we have to offer; and, in doing so, I thank you and your colleagues in America for the encouragement you give to our ancient art, and I congratulate you with the warmest cordiality on the fact that your line of thought, your line of work, and your spirit of achievement are the very spirit, work, and thought that have for centuries bound into a timeless brotherhood the architects of Europe.

Reply by Mr. Thomas Hastings.

Mr. Thomas Hastings, in the course of his reply, said that while Americans had inherited the English language, and, consequently, had no right to complain, he must confess that on that occasion he found the English vocabulary quite inadequate—there were no words to express his grateful appreciation of the honour which His Gracious Majesty the King had conferred upon him. He would like to feel that it was in recognition of such services as the profession in his country had rendered in the interest of contemporaneous architectural education. In all sincerity, he would rather believe that by example he had, in some way, influenced others in the right direction than to be conscious of individual success or feel that what he had done were worthy of their commendation. As they knew, he believed they should return to follow and respect the tradition which obtained before the present modern confusion, that they should be careful of the direction in which they worked, and thoughtful of their influence upon future generations. While the question of modernity was most important, it was, after all, the true inborn sense of beauty which assured the architect his success. Goethe

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said : " The Beautiful is a manifestation of secret laws of nature, which, but for this appearance, had been for ever concealed from us." The layman, too frequently, only superficially understood beauty in defining its attributes as though it were a mere appeal to the emotions, a pleasure-giving luxury, or a refining influence. It was rather an organic vital provision of nature, manifestly a part of the order of the universe—divinely ordained for the specific purpose of promoting permanency in all things, and giving life and enthusiasm wherever it might find its resting-place. It was, indeed, a force in life capable of stimulating the noblest endeavour, and capable of making virtue appeal to the senses, and making truth endure.

Nowhere was that so vividly illustrated as when they considered architectural design. The practising architect, if he continued, as he should, to be a draughtsman all his life, must realise that beauty of design and line build well in construction, and with greater economy and endurance than construction which was mere engineering. All form and all design were the natural and legitimate outcome of the nature or purpose of the object to be made. The practical and the artistic were inseparable. There was beauty in nature because all nature was a practical problem, well solved. The truly educated architect would never sacrifice the practical side of his problem. Some of the greatest economic, as well as architectural, calamities had been executed by so-called practical men with an experience mostly bad and with no education.

The science of modern engineering had too frequently divorced the architect from many of the larger and more interesting so-called utilitarian problems of construction. Some of them were entirely and legitimately architectural problems, while, in other cases, the architect should collaborate with the engineer. There might be no question of decoration or ornament involved, but architecture and practically all construction should be inseparable. An earnest appeal should be made for that collaboration, not merely in the interest of beauty, but rather in the interest of economy—beauty would follow in its natural sequence. In the larger municipal and suburban problems requiring economy in cost and saving of energy, even when commercial and investment interests were involved, in problems of traffic, rapid transit, and public comfort, under all conditions in the solution those greater problems the qualitative and quantitative viewpoints should be inseparable. Following the natural laws of the survival of the fittest, if undertaken with art, beauty would predominate in the end, and so deliver them from the defacement of nature, and make the city and suburbs more fit to live in, especially where the working and poorer classes were concerned. Such problems might only involve a thorough knowledge of good planning.

In the first years of his architectural career he was accused by his fellow-countrymen of attaching too much importance to the artistic study of the floor plan : it was constantly asserted that he was trying to inculcate the Paris Beaux Arts methods of education into their American architectural practice, his critics not realising that those methods of study in plan had been adhered to at all times since the beginning of architecture.

They little realised that if the floor plan, determining two of the three dimensions in space, was well studied beautiful in proportion, with a proper distribution of piers, thickness of walls, logically disposed and with good circulation, there would be no structural difficulties, and that principle had obtained ever since the dawn of architectural history. The plan lent itself to thinking in three dimensions. When the plan looked well it built well, constructed well, so that they found they needed very little of the analytical mathematics to assist them, excepting as a mere matter of verification. Until modern times, architects knew but little about analytical mathematics as compared with what they were now given to learn, but they knew their stereotomy better than most of them did to-day. They knew but little about the strength of materials, but they understood constructive principles, for, after all, analytical mathematics was a comparatively modern science. While there existed graphical rules for the approximate determination of the thrusts from arches as early as the thirteenth century, yet it was practically only within the last century that the correct principles of constructive analysis had been fully developed.

If an arch or a bridge looked well, it would build well when it was the outcome of a well-studied plan. There must have occurred many serious calamities in the past because of bad art and no analytical means of verification, but just as nature was beautiful when fit to survive, so the great buildings and monuments of the past that had survived were beautiful in plan, form and proportion. It was really architecture and well-proportioned masonry *versus* engineering and iron, a comparatively new profession and a new material ; each had its use, but they were not interchangeable. He believed that buildings had stood for centuries solely because their plans, as seen on paper, were so thoroughly artistic and beautiful. They were told that the cell of the bee was built at that angle which gave the most strength with the least wax, so that the line of beauty was the result of perfect economy. Emerson realised the truth when he said it was a rule of largest application, true in a plant, true in a loaf of bread, that in the construction of any fabric or organism any real increase of fitness to its end was an increase of beauty.

Americans too little realised that they really came to Europe in a large measure because of what man had done with art to beautify nature. As music was more beautiful than any merely natural sound, so nature was generally either greatly enhanced by the human interest when man had made his impress upon it, or it was cruelly and unnecessarily sacrificed.

Art and a proper artistic sense of the fitness of things completed the picture. When far away from civilisation, surrounded by primeval nature, a man, if in his normal state of mind, soon longed for the warmth and colour of fertile fields, the thrift of farms ; he thought of forests interwoven by winding roads or vistas intelligently conceived. The pageantry of sea and sky, the starlit night, the rugged mountains or deep crevices, the bewildering beauty of the flowers, could never awaken the same human emotions and sympathy as when, with art, they were made more beautiful, wedded to weather-beaten walls, the castle or the shrine, or the distant romantic village nestled in the crevice or perched on the mountain side. He had said that he believed it to be a law of the universe that the forms of life that were fittest to survive—indeed, the very universe itself—were beautiful in form and colour, and that nature's selections were beautifully expressed. Ugliness, deformity and self-indulgence were synonymous. And so it was in every economy of life ; what would survive must be beautifully expressed. It was equally true that one trained in the understanding of beauty could more profoundly fathom the laws of nature than one who had neglected to develop that side of his education. Indeed, if the way of the artist was undertaken with philosophy and humility, the things that were divine, God in the universe, would, he believed, be more clearly revealed to him, more impressively, more convincingly, than when approached by way of theological discussion or scientific research. The horizon of his vision contained more, within a larger circle, with visions of things more ennobling, more uplifting.

And so in literature as in art, the subject matter must be expressed or presented with beauty in order to survive and firmly impress itself upon successive generations. It was the art in story-telling which gave real life and human interest to the characters, and which makes the fancy and imagination of the author outlive his own generation. Words might have colour as full and luminous as might be found in any school of painting, and form as subtle and radiant as might be revealed in the art of the sculptor or the architect, and music as beautiful and melodious as a song. Truth or precept, as well as fiction, would only penetrate the human heart and demand respect and obedience when clothed in beauty. The proverbs, the bywords of the ages, were only familiar truths beautifully expressed with forceful simplicity and precise epigram ; even mathematics had a beauty of their own, and, while in some ways allied with beauty in art, both were different

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phases of what they might call generalised beauty. Every mathematical equation had a certain quality of beauty because it was orderly and complete in its visible expression of a truth. All the natural lines of stresses and strains in a solid were things of beauty, and every structure built to those true lines, *ipso facto*, was beautiful. Newton's laws of motion, so simple, so fundamental, so inclusive in their scope, could only be formulated with such elegance of expression as to make their enunciation endure for ever. The divine word of God, as it had been revealed in any enduring philosophy or religion, had always been enshrined in language immortal. There was beauty everywhere, and there was no such thing as poverty, if only they realised the universal ownership of beauty in nature and art.

They might own the land, but not the landscape! They might have physical possession of a great picture or a building, but if they were really great the man who truly owned them was the man who most appreciated their beauty. In the light of that truth in written word, in painted canvas, or chiselled stone, or in the harmonies and melodies of sound, and in the beauty of nature all around, the happiest and richest man in the world was he who saw most and best understood the laws of nature as expressed in beauty.

The Continuity of English Architecture.

The concluding public lecture of the afternoon series arranged by the Royal Institute of British Architects was given at 9 Conduit Street, W., on Wednesday, June 21, by Mr. W. H. Bidlake, M.A. In introducing his subject, under the above title, Mr. Bidlake explained that he had no wish to imply that continuity was the peculiar characteristic of English architecture. Continuity was a characteristic of all architecture of the past, as it was of the development of mind of one of whose activities it was the outcome. So entirely was continuity the rule that if discontinuity be detected here or there, it calls for explanation. How could it be otherwise? The wisdom and experience of the father is handed on to the son. The methods of the worker are carried on by his apprentices. The son by his experience may qualify his father's wisdom: the apprentice in due course may improve on the methods of his master. This makes for a living development; but the continuity is unbroken. Nature in adapting an organism to changing conditions does not destroy and start afresh. She takes an existing organ and modifies it to serve its new purpose. She does not proceed by the method of the "clean slate." Only social reformers sought to do that. The destroyer is the impracticable idealist.

There were two primitive human needs, food and protection. Protection from enemies and animals, and protection from conditions of climate, from cold, rain and snow. These conditions at any given spot have been fairly constant for long ages, and the human need arising therefrom has found satisfaction in methods which have become so stabilised as to form deeply-rooted habits and traditions. Thus a building, however crude, is the expression of man's primitive need for protection either for himself, or for his god fashioned after his likeness, and therefore like himself requiring a dwelling, or for his body in the tomb, his eternal habitation.

These buildings will be conditioned by the climate and by the materials available: the stone beam and flat roof of Egypt; the brick vault and dome of Babylonia, the timber framing and high-pitched roof of thatch of Saxon England, and the exquisite refinement in white marble of the Greek temple. Building styles thus developed, for the methods of beam and flat roof construction are radically different from those of arch and dome construction. Nevertheless, as a result of proximity, intercourse or conquest, the building customs of one district have influenced those of others. But those districts, having already building customs of their own, absorbed after a time the new ideas, the new methods, blending the new with the pre-existing without any break or disturbance of continuity. None the less, however complete the fusion, diversity of origin reveals itself on careful examination, and when the fusion is less complete a certain mixed character or even incongruity is readily perceived. For it may be that one district may have appropriated the constructive forms of another without the actual construction to which perhaps the building materials were less suited. And thus not understanding the constructive meaning of such forms they have employed them as decoration, and as likely as not misapply them. The logical manner in which such forms are used is evidence as regards their being indigenous or imported. And herein is it that architecture is history written in stone, and herein too, in a peculiar degree, lies the fascination of the study of architecture.

A country may perhaps at some earlier time have constructed its buildings in timber, or in timber and mud brick, and so accustomed had it become to the external forms of this construction that when subsequently its buildings were made of stone, the earlier forms of timber construction were imitated in stone. In this way the distinctive features of both the Greek Doric and Ionic Orders arose, and a certain external continuity in the design was maintained. It is in fact quite a general law of architecture that the constructive forms of one age become the decorative ones of a later. And no study could be more interesting than the elucidation of this or that well-known architectural form. The continuity of their existence is remarkable, or at least would be if man were not so entirely the creature of habit. But that was the solution of the whole problem. It was force of habit. It was inertia; the disinclination to exertion, to the mental effort of entertaining new ideas.

Englishmen rightly or wrongly are supposed to be peculiarly the subject of this inertia, the repugnance for new ideas. Our legislators often pass laws less because of their urgency than because the insistence of public opinion will not allow of further postponement. Mr. Gladstone called it the Englishman's "impenetrable somnolence." One may exaggerate this trait, but it none the less existed, and if the continuity of architecture has manifested itself in other countries and at other times, we might expect to find abundant evidence of it in England.

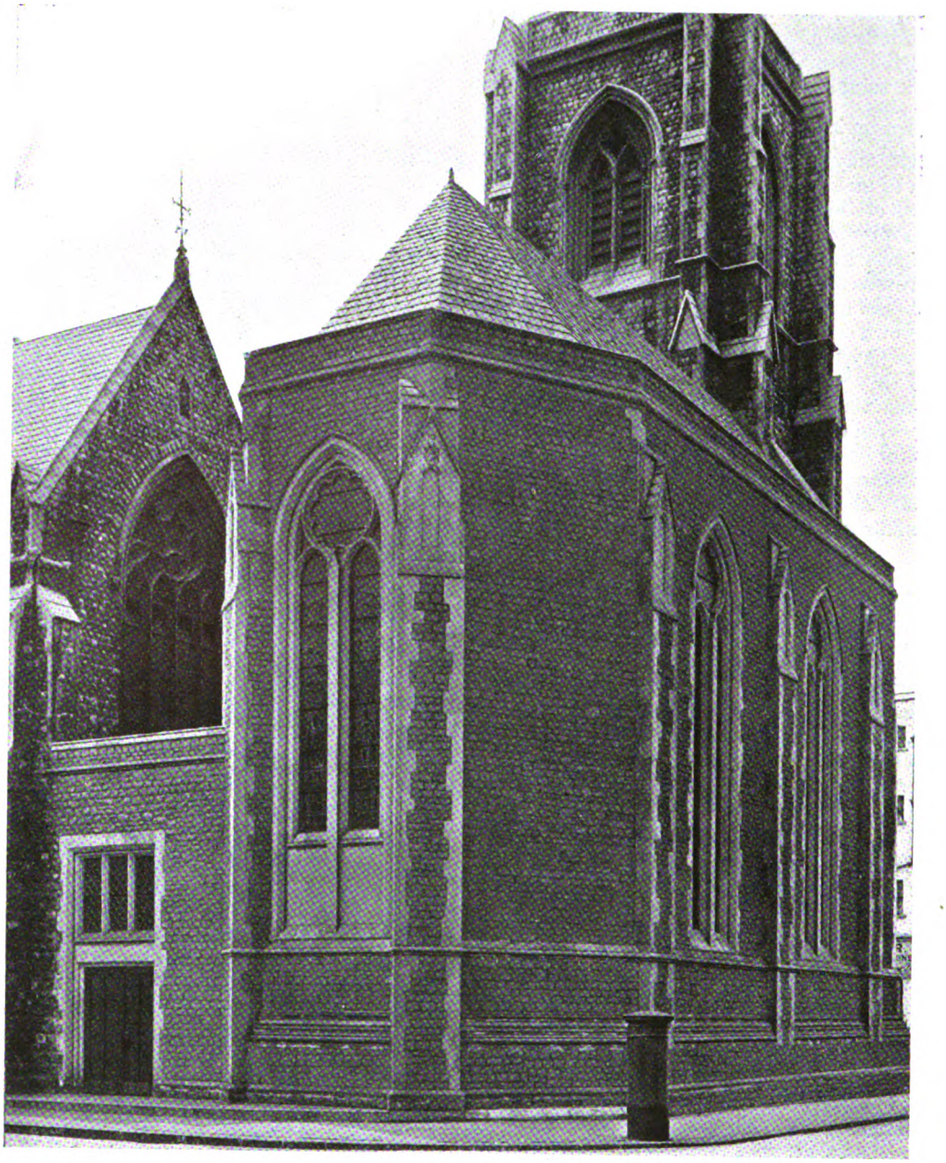
Mr. Bidlake then proceeded to show how the Englishman in the Middle Ages went counter to an almost universal tradition in the rest of Europe and clung to his own way of doing things when he persisted in square east ends to his churches instead of the rounded apse. St. Columba and the Celtic missionaries brought to the north of England the church planned as a square cell with a square projection to the east. Certainly St. Augustine also introduced the Roman type of apsidal church. But the apse fell into disrepute, and, despite subsequent sporadic efforts to re-establish it, the square end prevailed, and often replaced the other, as at Ely. Gloucester Cathedral retains its circular termination only in the crypt. Wren continued the tradition in most of his city churches. Nowadays, nine out of ten English churches are built with square east ends.

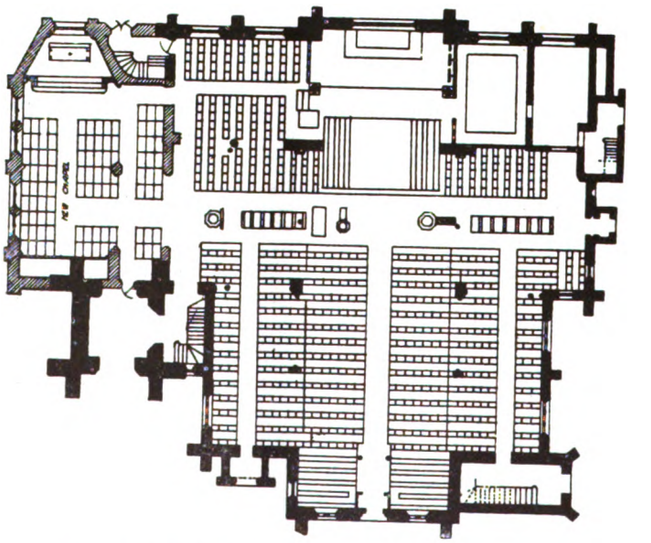
There was a similar tenacity of tradition in domestic work. Bodiam and Hurstmonceaux castles, for example, continued a type of defence which had already become out of date, judged by contemporary military standards. But the trappings of a fortress had grown to be the insignia of a gentleman's mansion. Embattlements were appropriated for castle, manor, church tower and choir screen as decorative features. The smoke louvre of the chimneyless hall became the lantern of later centuries.

Continuity in architecture can be traced out in immaterial things. For example, one of the leading characteristics of English work is a love of horizontality. Mr. Bidlake thought it was that fact which led to our adoption of the Italian type of Renaissance rather than of the French.

A public exhibition of drawings by students of the Architectural Association School of Architecture was opened at the State Academy, Amsterdam, on Saturday, June 24. The exhibition was sent over at the invitation of the Dutch Association for the Higher Education of Architects. The President of the Society, Mr. Jan de Meyer, in opening the exhibition spoke of the great inspiration Dutch architects had found in the domestic architecture in England. He said how greatly they were impressed with the exhibition and the obvious thoroughness of the Architectural Association's educational system, from which they had much to learn.

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ST. MICHAEL'S CHURCH, CHESTER SQUARE, S.W.
MEMORIAL CHAPEL.
G. Gilbert Scott, R.A., Architect.

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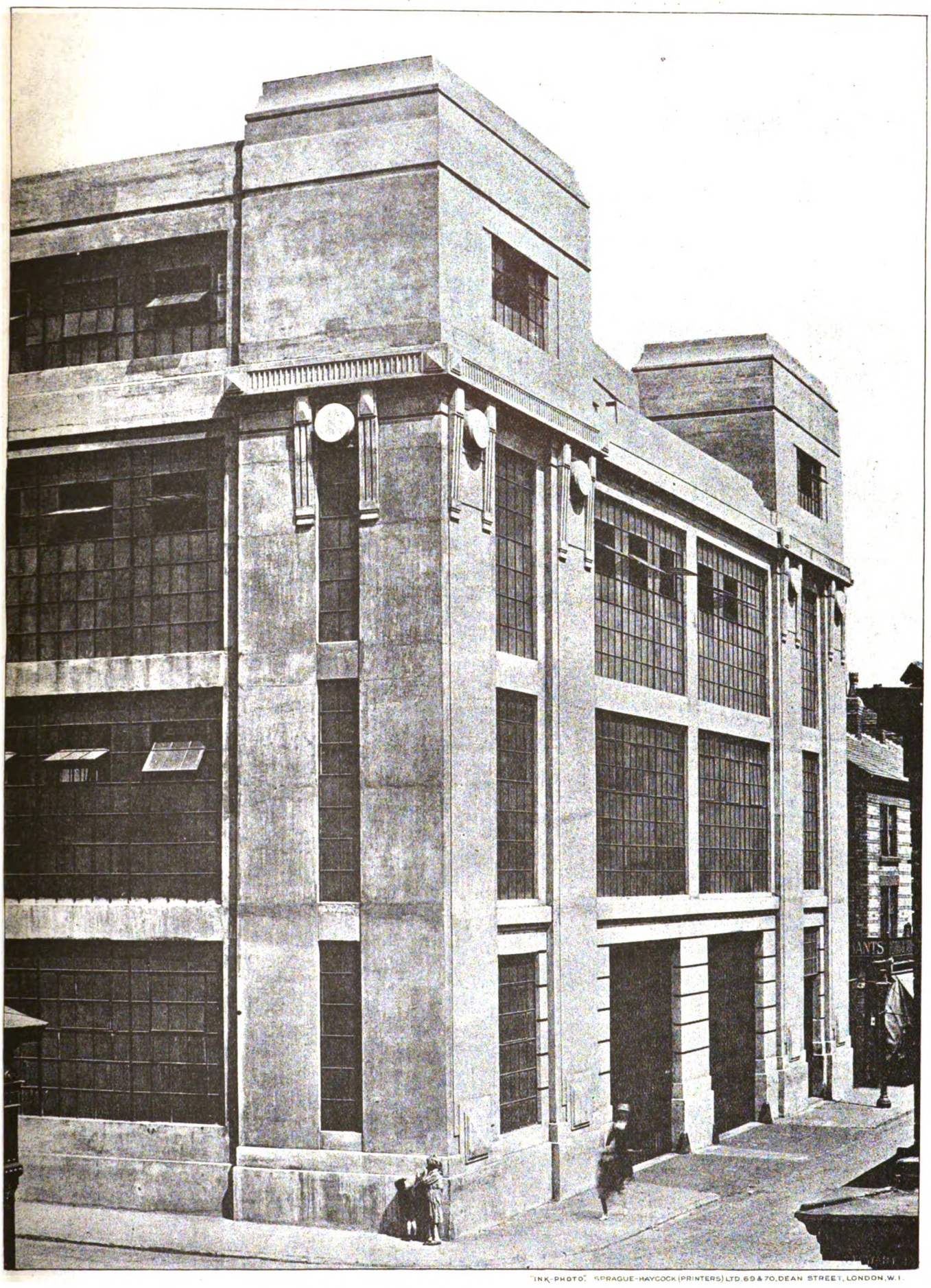
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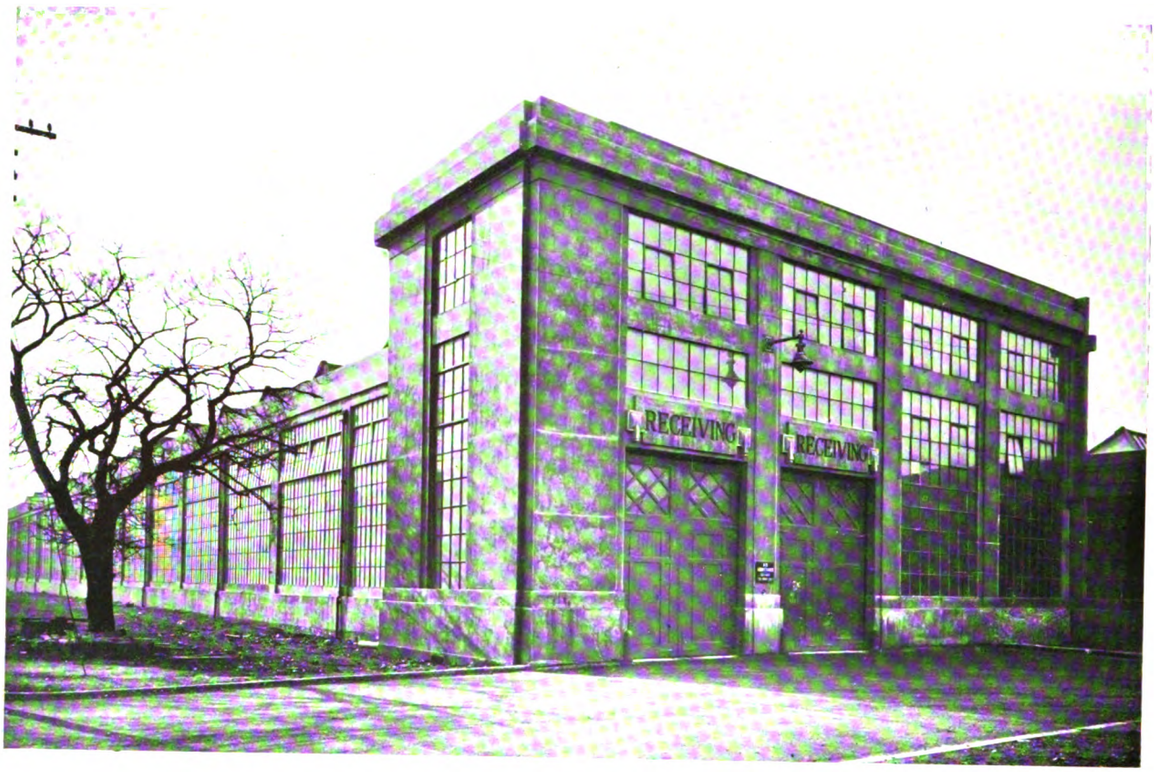
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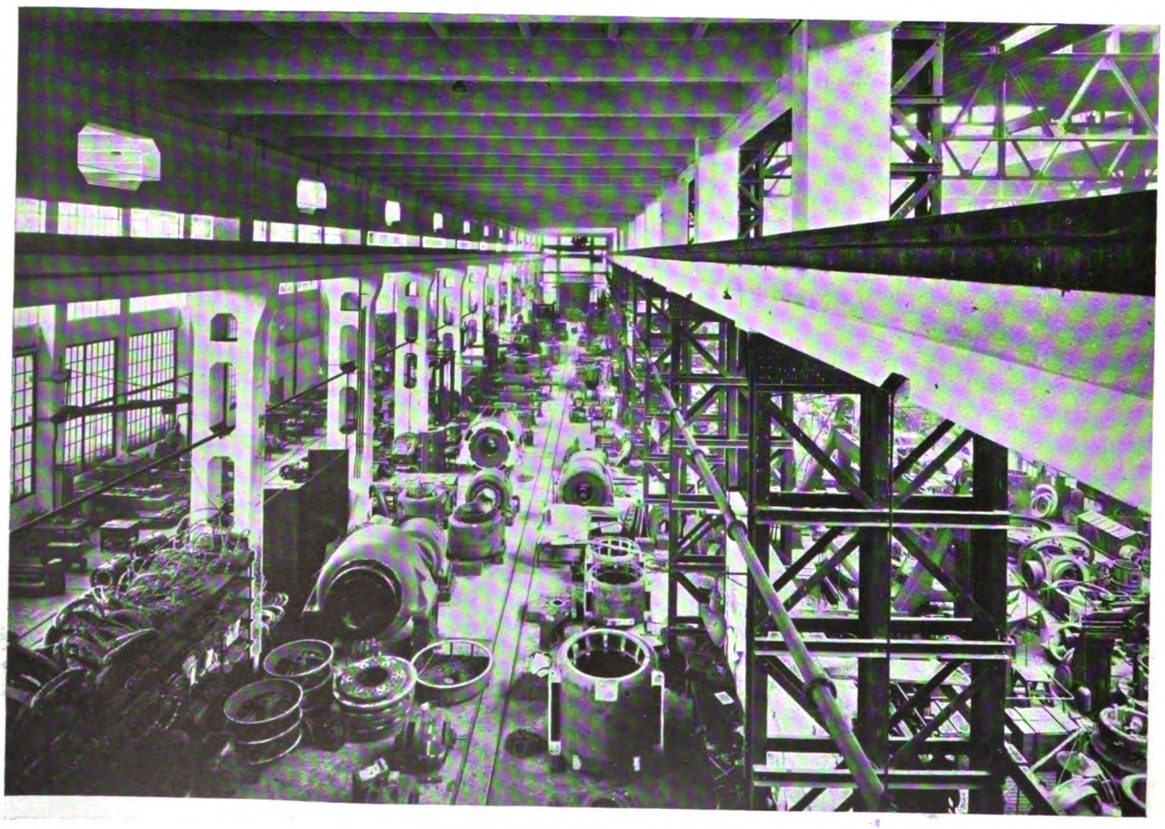
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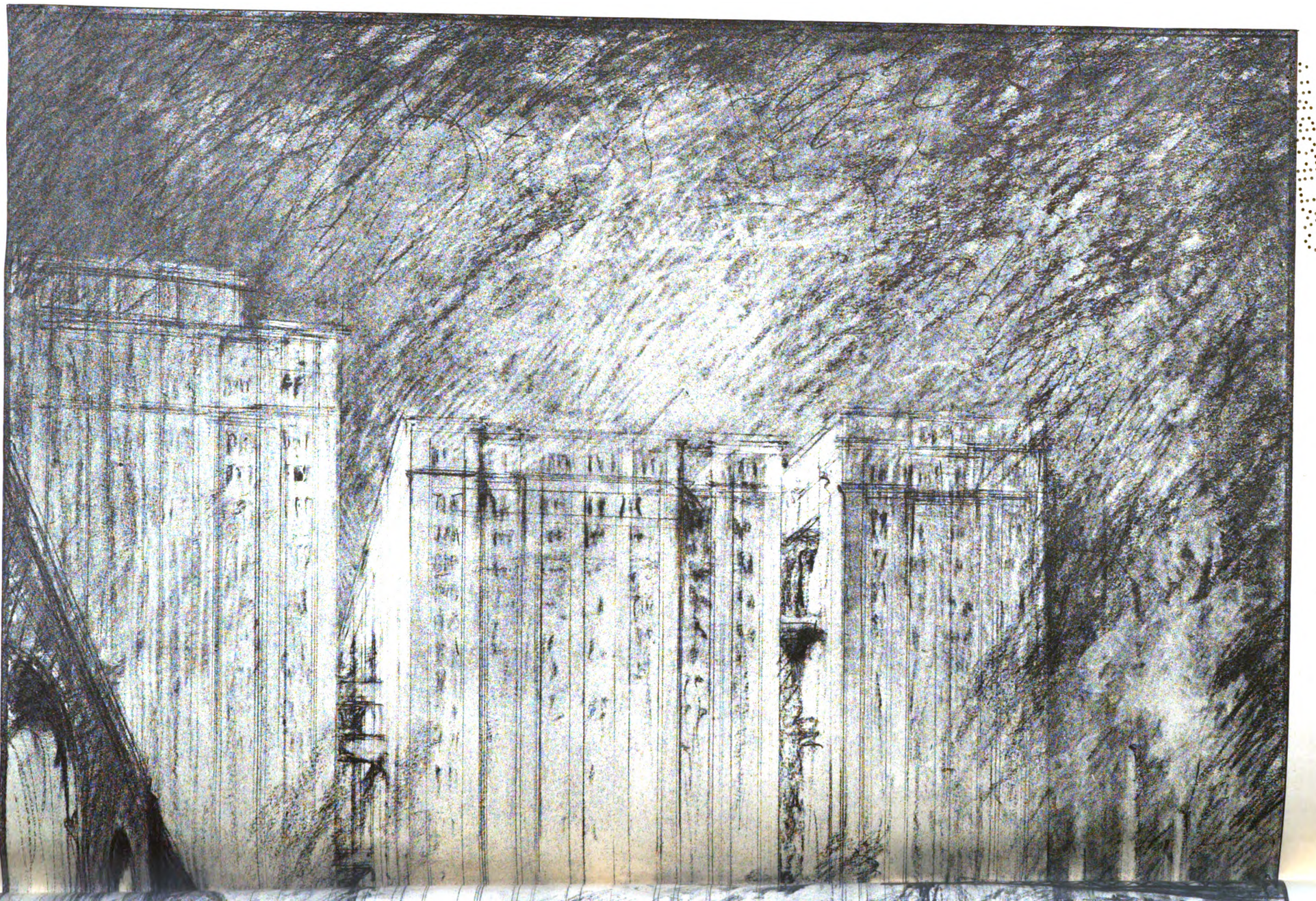
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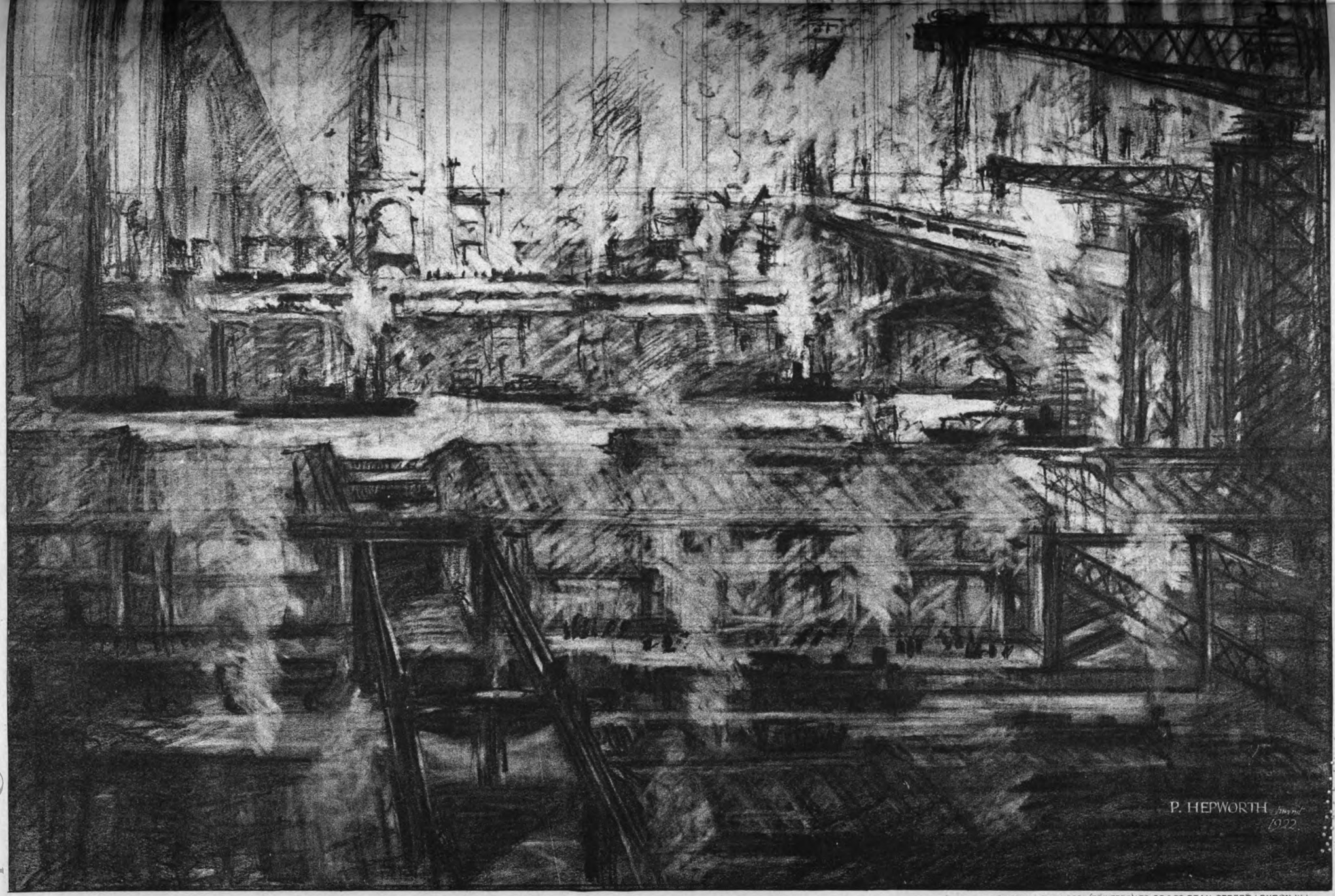
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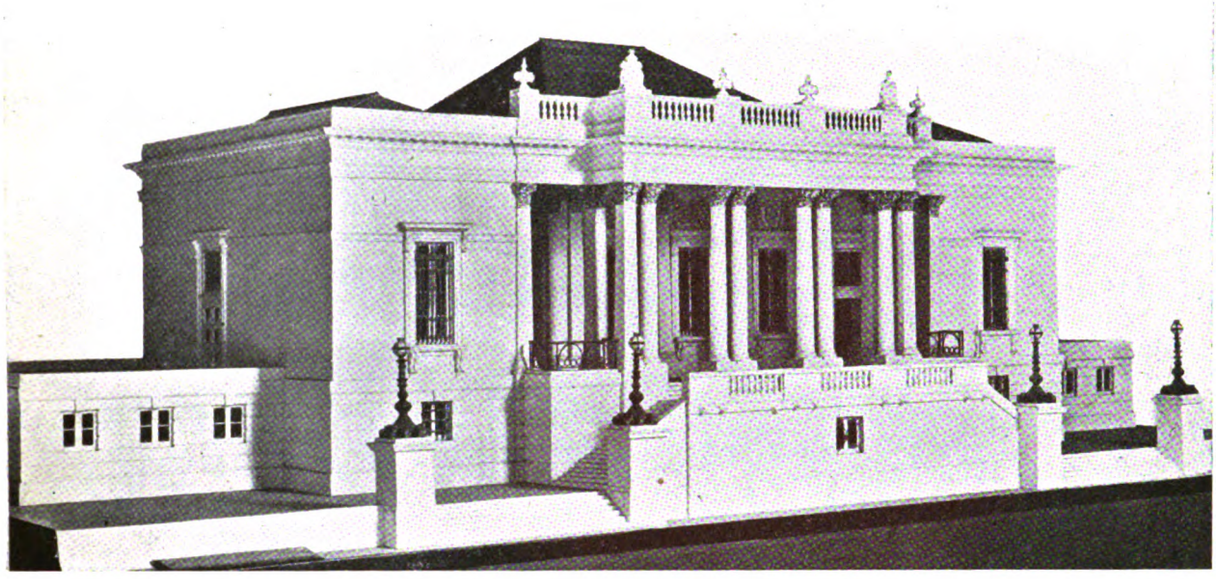
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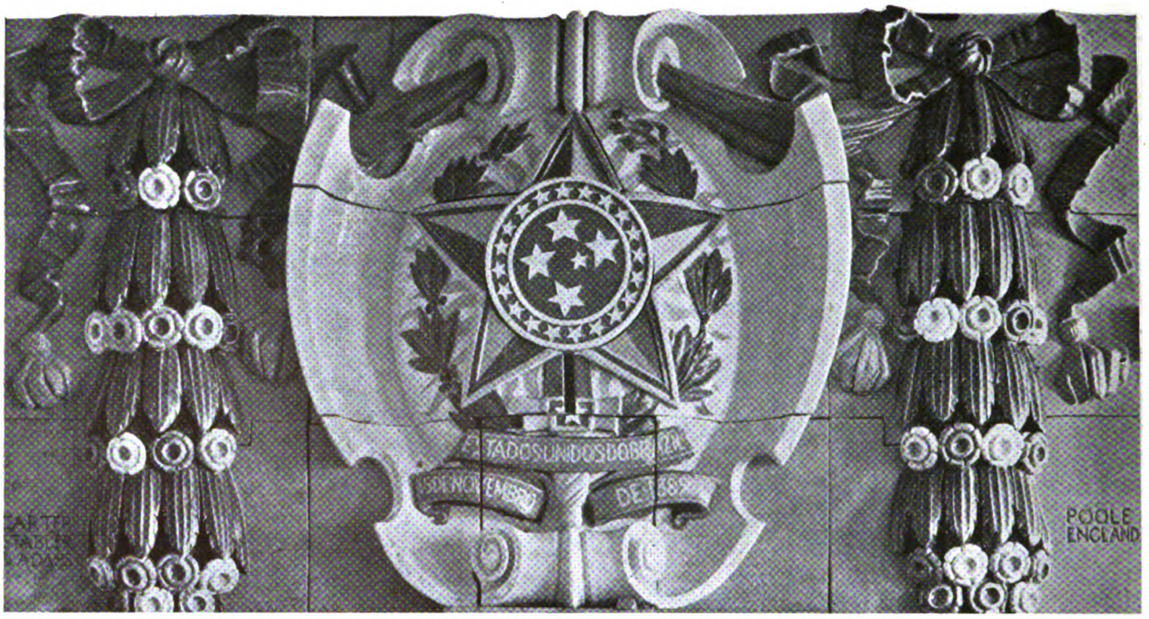






THE BRITISH PAVILION, RIO DE JANEIRO CENTENARY EXHIBITION.
PHOTOGRAPH FROM MODEL OF PAVILION.
MESSRS. SIMPSON & AYRTON, Architects. Panels by PROFESSOR GERALD MOIRÁ.

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BRITISH PAVILION, RIO DE JANEIRO CENTENARY EXHIBITION. COAT OF ARMS DESIGNED BY HAROLD STABLER AND S. KRUGER GRAY.

British Pavilion, Rio Centenary Exhibition

An exhibition of the decorations of the British pavilion, organised by the Department of Overseas Trade, was held in the gallery and offices of Messrs. Clayton & Bell, 9, Clifford Street, W., with a model of the pavilion constructed to scale, with the actual position of the decorations indicated.

The building is of concrete, steel and brick construction, finished with white cement stucco.

The three centre panels above the windows at the back of the portico are in coloured faience, and represent the Royal arms and the arms of Brazil and Rio respectively. These tablets were designed by Harold Stabler & S. Kruger Gray, and executed by Messrs. Carter, Stabler and Adams, of Poole, Dorset.

The main frieze, running round the building, is filled with tiles of a transparent blue colour.

The windows are fitted with bronze grills, and the entrance doors and standard lamps on the terrace piers are also of bronze. The main floor is on the higher level, 17 ft. above the pavement, and is reached by wide flights of steps at either end of the terrace 14 feet wide. The portico or loggia is 19 feet deep and 70 feet long, with entrances at each end to the galleries and staircases down to the lower, or street, level.

The central hall or gallery is 46 feet square, and 32 feet high, with a well 24 feet square open to the lower floor.

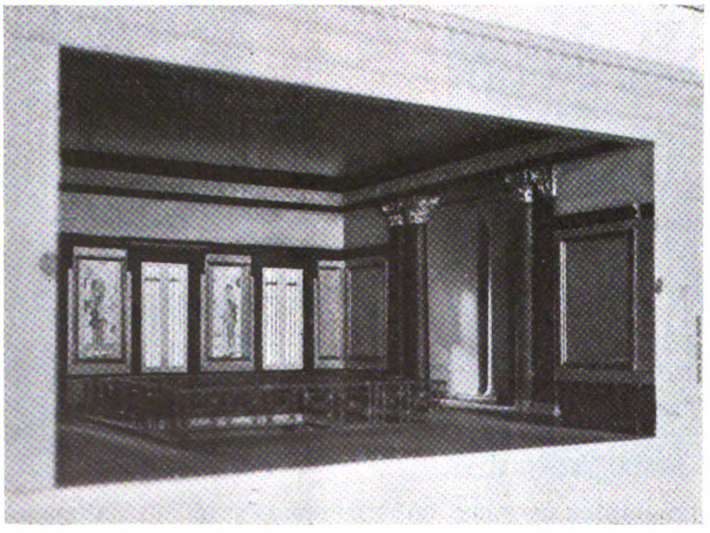
The entrance lobbies separate the central hall from the two side galleries, which are each 58 feet long by 25 feet wide and 28 feet high. All three galleries are top and side lit.

The walls of the central hall are decorated with large mural paintings representing the Seven Seas and the dome ceiling light is filled with stained glass.

On the lower level are three galleries of the same dimensions as those above, but 12 feet 6 inches high.

The building of the British pavilion was undertaken by the English contractors in Rio de Janeiro, Messrs. Scott & Urner.

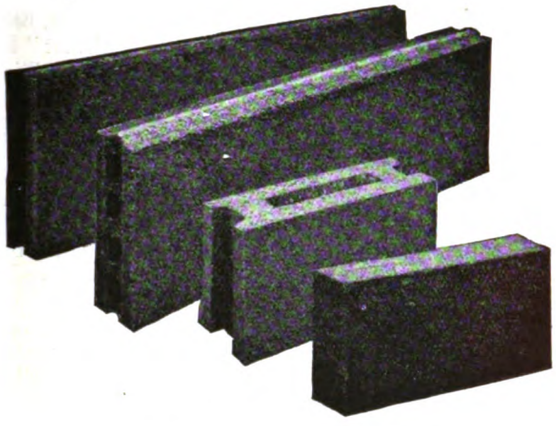
The building and decoration of the pavilion signalises a very definite step in the attainment of that ideal combination of the architects and the artists responsible for the decoration. These gentlemen have been in the closest collaboration throughout, thus assuring that the whole building, from foundations to the frescoes on the walls and the stained glass in its windows, shall be one complete and harmonious whole. The architects are Messrs. J. W. Simpson and Maxwell Ayrton. The artists are Mr. Charles Sims, R.A., Mr. Anning Bell, R.A., and Prof. Gerald Moira, A.R.A.; while the stained-glass work has been done by Mr. Reginald Bell.

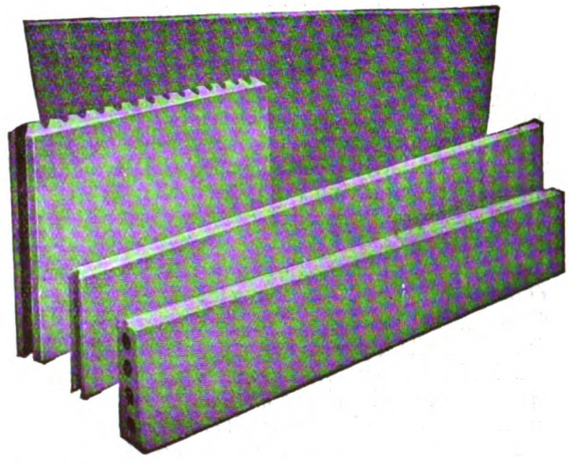


BRITISH PAVILION, RIO DE JANEIRO CENTENARY EXHIBITION. AN INTERIOR

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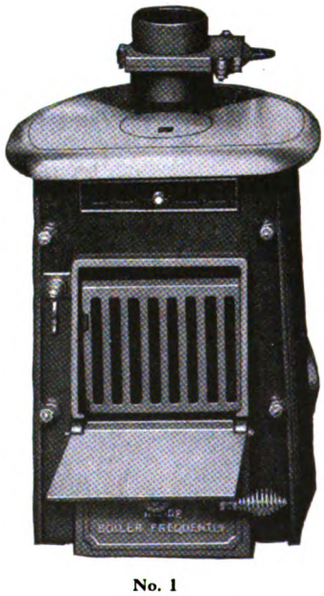
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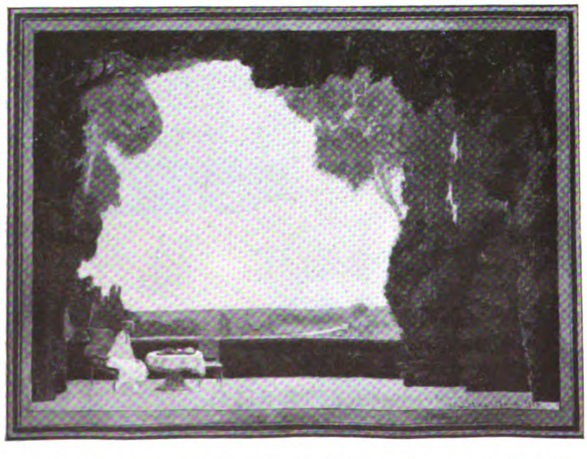
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International Theatre Exhibition.

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The idea of a London exhibition of the modern theatre, which has this month materialised at the Victoria and Albert Museum, may be said to have originated in its present definite form in the exhibition organised earlier in the present year under the title of Internationale Theater Tentonstellung at the Stadtliche Museum at Amsterdam; but the same idea had already been before others in London who took a keen interest in our modern theatre, and saw what benefit might be found in such a display, and when the Amsterdam exhibition opened Mr. Martin Hardie, who is in charge of the Engraving and Illustration Department at South Kensington, was sent over to Holland, with the approval of the Board of Education, to report on the Amsterdam exhibition, which had owed so much to the initiative and energy of Heer H. T. Wijdeveld.

The result of this visit and of the success which had been achieved in Holland was an organised movement to transfer the exhibition to London. A committee was formed, with the support of the President of the British Drama League (Lord Howard de Walden), as well as of the Society of West End Theatre Managers and of the Actors' Association, and of Mr. Gordon Craig (who was at Amsterdam working with Heer Wijdeveld and the Dutch committee), and a meeting held at the Victoria and Albert Museum, on February 23 last, heard the announcement that the exhibition would be transported to London and would enjoy there the hospitality and shelter of our great Museum. That "locale" is, in fact, most satisfactory; it is accessible to the public, and it has been well remarked that, as the Museum is the official centre and home of all branches of industrial art and design, there is no branch which covers quite so wide a field as the theatre, which touches architecture, painting, design, and decoration. Although the Amsterdam display formed the nucleus of the present exhibition, it is, of course, by no means all: notably the British and American sections are far more complete than they were in Holland, and I consider it would not be too much to say that what is now shown is more than half as much again as appeared previously. It is the whole machinery of stage production—in the costumes, staging and effects of lighting—which forms the important side of the London International Theatre Exhibition. As Mr. Gordon Craig tells us: "The drawings, models, plans, masks and marionettes shown here are part of the results of our labour," and he adds that "out of about 900 pieces exhibited here, at least two-thirds have been carried out in large on the stages in America, Austria, Belgium, England, France, Germany, Holland, Italy, Poland, Russia and Switzerland," while "in most of these lands the playwriter and the actor have welcomed our ideas —for it is *ideas* which we have brought to the theatres, and not merely sceneries and pictures."



SKETCH DESIGN FOR STAGE SETTING OF "AIMER"
By DRESA.

Let us now turn to the exhibits themselves, many of which merit a careful study. Like others in London, I was deeply interested and attracted at the time by the fine production some years ago of "The Miracle," and therefore was delighted to find here the design by Stern for the stage setting of this marvellous Reinhardt production in London, as well as of the stage setting of "Sumurun" produced in those years at the Deutsches Theater in Berlin, and played later, if I remember rightly, at the London Coliseum, being a production to which it then seemed to me "Kismet" had owed a good deal of its immense success and brilliant effects.

A very effective study is the design by the same artist, Ernst Stern, for the scenery for "Danton," by Romain Rolland. Here we see a huge dimly lighted hall, its obscure depths filled with crowded figures, while at the tribune the form of Danton is haranguing this gathering in the cave of the Jacobins. There is imagination in this drawing: it gets within the very spirit of the Revolution epoch in Paris of those times of the Terror.

One of the features which attracts the public most strongly in the exhibition, and is also, I imagine, of great practical advantage, is the room of models for stage settings, which includes some of those by the late Claude Lovat Fraser, which I mentioned in these columns when recently shown at the Leicester Galleries. I noticed especially here the sets for the production of "The Beggar's Opera" at the Lyric Theatre, Hammersmith, in June, 1920, and the scene of "Duke Frederick's Courtyard" in "As You Like It." With these I may notice "A Street in Verona" for "Romeo and Juliet" by Woodman Thompson, Arnold Gibbons's scene of Auerbach's Cellar in "Faust," May Lowy's street scene and James Bernard Fagan's street scene in "The Singer of Shiraz." Lastly, I may mention in this connection three models for "Hamlet" by Gordon Craig, lighted effectively from behind or the side. Mr. Gordon Craig seems here and elsewhere to aim at getting flat spaces, light in tone, with strong effects of light and shade, and reflected colour playing over the surface, what I believe are called painted cloths in stage setting being omitted. In his figure drawings for costume characters this artist uses frequently woodcuts.

This side of the exhibition—namely, of costume design—is one of the richest and most important. In the British section we find Percy Anderson ("Kismet," "Chu-Chin-Chow," "The Nautch Girl," and other plays), Lovat Fraser, Albert Rutherston (costume designs for "A Winter's Tale"), Charles Ricketts (Maeterlinck's "Betrothal" and other plays), and Hugo Rumbold (costume designs for "Jeames Yellowplush"). In the Belgian section I noticed M. Schnischek's costume designs, others by Grunewald for "Samson and Delilah" are worth special mention. The Russians seem here to indulge in violent contrasts of strong colour, though Benoit's designs for the stage setting for "Le Rossignol," with Stravinsky's music, are excellent in their colour scheme. Herman Rosse has an admirable design for an architectural stage, somewhat severe, but simple and good in planning; I am this week able to illustrate a sketch design for the stage setting for "Aimer," written by Paul Geraldy, and produced at the Comédie Française at Paris in January of the present year, this charming composition being designed by Dresa for the second act. Lastly, I will mention Raymond Jonson's design for Bernard Shaw's "Mrs. Warren's Profession," Bertin's stage setting for "Œdipus," Adolphe Appia's settings for Wagner's operas of "Parsifal" and "Rheingold," and in a lighter key the stage settings, charmingly designed, by Marc-Henri and Laverdet for Henri Bataille's "L'Homme à la Rose" (Théâtre de Paris, 1920) and for "Toy Land" in "The Babes in the Wood" (Oxford Theatre, London) and the Drury Lane production of "Cinderella," which many of my readers will remember in 1919.

The Exhibition is open till July 16, and those who love the theatre and its development among us will do well to find the time for a visit, and study for themselves these models.

S. B.

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Studies of the English Sculptors from Pierce to Chantrey.*

XV. Joseph Wilton, R.A. (1722-1803).

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We have now come to a period at which Vertue's notes no longer help us to any extent ; the only original portion of this and succeeding papers is therefore the attempt to present a more complete list of their works, together with literary allusions not as yet drawn upon by the few biographers whom our sculptors have met with.

Joseph Wilton was son of a wealthy tradesman and plasterer, who owned a papier-maché factory near Charing Cross. His son's promise as a sculptor induced the father to take him to Brabant at an early age to study under Laurent Delvaux, whom we have already met as the friend and fellow-sculptor of Scheemaker, and who, after a period of success in England, went abroad with his friend and the painter Angelis. Staying in Rome longer than they did, Delvaux met with considerable patronage, especially from the Portuguese Minister, and returned to England in 1733, being shortly afterwards sent to Brussels on official business. There he became chief sculptor to Charles VI. and the Archduchess Marie Elizabeth, in 1750 obtaining the same office to the Duke of Lorraine ; and it was probably about 1740 that young Wilton was sent to his studio, which he quitted in 1744 to work under J. B. Pigalle at Paris. Having gained a silver medal there and mastered the technique of marble-cutting, of which he was to make less use than any previous sculptor, since the bulk of his work was left to his assistants, he went to Rome in 1747—with Roubiliac, it is said, though this must be a mistake, since we know that the latter first visited Italy in 1752. Here he made his mark, and in 1750 " received the Jubilee gold medal given by Pope Benedict XIV.," obtaining besides the patronage of that enlightened connoisseur William Locke of Norbury Park, whose family play so pleasant a part in the Diary of Fanny Burney. In 1751 Wilton went to Florence, where during a residence of four years he copied many antique statues on the scale of the originals—one replica of his Venus de Medici, highly polished, stood at Charlemont House, Dublin, with others of his works, while another, together with his copy of the Apollo Belvedere, is at Wilton House. He also began one or other of his busts of Cromwell, and made reputation enough for Horace Walpole to write to Sir Horace Mann (October 6, 1753) : " You have puzzled me extremely by a paragraph in yours about one Wilton, a sculptor, who, you say, is mentioned with encomium in one of the 'Worlds'" [really in the "Inspector," so no wonder Walpole was puzzled], which proves that Wilton was already hailed at Florence as a coming man. He returned to England in 1755, and in 1758 received his first public appointment as co-director with his friend Cipriani of the gallery of casts, ancient and modern, in Privy Gardens, Whitehall, which the Duke of Richmond had liberally opened for the use of students ; some of the casts were subsequently given to the Royal Academy when the gallery was for a time closed, but it was subsequently reopened and remained so till 1820. About the same time Wilton was appointed State-coach Carver to the King, an office of more dignity than it is to-day easy to conceive, and built the famous state coach used by George III., to whom he was about 1763 appointed sculptor, and of whom he designed at least two statues. The model for the coach was subsequently seen and admired by J. T. Smith.

His first really important commission was the cenotaph to General Wolfe in Westminster Abbey, for which he deserves less credit than is sometimes assigned him, since, though he frankly said that he represented Wolfe naked in order to show his knowledge of anatomy, the execution of the hero and his attendants was entirely entrusted to his assistants, Nathaniel Smith and John Adkins, both of whom had entered his studio after the death of their former master Roubiliac. J. T. Smith tells us that the cutting of these figures occupied three years. The best feature of the monument is the bronze bas-relief of the taking of Quebec, which was executed by Wilton's eccentric friend Capizzoldi, who had come from Italy with him, assisted him with the state coach, and, finding little employment here, returned to Italy.

But the most singular part of the story is to come. As if Wilton had not already been favoured enough by fortune in the removal of his rival Roubiliac by death, and the preference of his design to that of " Adam, Chambers and others " (Walpole to Mann, August 1, 1760), the Abbey authorities were so anxious to do credit to his masterpiece that they actually were prepared to remove the tomb of Aymer de Valence, on which Wilton had apparently insisted. Horace Walpole heard the rumour, and wrote to the Dean " expressing my concern that one of the finest and most ancient monuments in the Abbey should be removed, and begging, if it was removed, that he would bestow it on me, who would erect and preserve it here." Dr. Pearce replied at the end of a fortnight that they had taken the tomb for a Templar's, but that " upon discovering whose it was, he had been very unwilling to consent to the removal, and at last had obliged Wilton to engage to set it up within ten feet of where it stands at present." We remember Roubiliac's reverence for another Abbey monument, and find it hard to forgive Joseph Wilton his subsequent honours.

His latest commission in connection with the Abbey came to nothing. Sir William Browne, whose monument in Essex Wilton was to execute, left directions that his executor " shall cause a Marble Monument to be erected for me in Westminster Abbey," the site desired being " the arch on



MONUMENT TO EARL AND COUNTESS OF MOUNTRATH IN WESTMINSTER ABBEY. By Joseph Wilton, R.A.

* For preceding articles in this series see :—Introductory Article, July 1 ; Nicholas Stone (1587-1647), July 8 ; Edward Pierce (ob. 1698), Sept. 2 ; Caius Gabriel Cibber (1630-1700), Sept. 16 ; Grinling Gibbons (1648-1721), Sept. 30 ; John Bushnell (d. 1701), Oct. 7 ; Francis Bird (1667-1731), Oct. 21 ; Peter Scheemaker (1690-1771 ?), Dec. 9 and Feb. 10 ; John Michael Rysbrack (1693-1770), Mar. 3 and April 7 ; Louis François Roubiliac (1695-1762), April 21, June 16 and June 23.

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ARE you familiar with the term—"integral concrete hardener"? That expression is used to indicate some process or material which may be added to the ingredients of concrete *before* it actually becomes concrete. Some integral compounds are powders added to or mixed with the cement. *My* compound ("Colemanite") is a chemical liquid with a calcium chloride base, poured into the gauging water that hydrates the dry mix. Do *you* believe in integral compounds, used to ensure that concrete will be harder than plain concrete and more certainly waterproof? I suppose your belief or disbelief depends to a large extent upon your individual experience. If you have had *no* experience of integral compounds, you should have an open mind. If you have had experience of "Colemanite" and do not believe in integral compounds, I should like to hear from you. I know the consistent users of "Colemanite" believe in it. Their repeat orders prove that. Most of our casual users become consistent users. *Their* belief in our integral compound must develop in direct ratio to the increasing volume of their orders. But let me for a moment write of integral compounds *in general.* The cement manufacturers all over the world were once inclined to express doubt as to the advantage of using integral compounds. That puts it mildly. (*Some* cement manufacturers to-day recommend "Colemanite." So far as I know none condemn it. One day, I think, they will *all* know that its use produces a concrete which cannot be made without it. We shall see about that as the years pass.) Dealing with integral compounds in general the Bureau of Standards in Washington D.C.—a most progressive and up-to-date department—issued a questionnaire to members of the American Society of Engineering Contractors, the American Society of Civil Engineers, the American Railway Engineering Association, and the American Institute of Architects. The questionnaire asked the experience of users of integral waterproofing in concrete. Of those who replied who had such experience, 99 per cent. were still using, and 75 per cent, invariably recommending the use of integral compounds. The data gained from these replies, and 2628 other replies to a similar set of questions circulated by a publication known as "Structural Conservation," may interest you. Of the 2628 users of integral compounds, 94·2 per cent. were in favour of using them in concrete subjected to hydrostatic pressure, and 5·8 per cent. against them. If you would like to have further details of these questionnaires, I will be glad to send them on application. (My address is Regent House, Regent Street, London, W.1.) Write to me. I sell "Colemanite."

Frederic Coleman

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the West side of the East door leading into the Cloisters." The drawing he left for the purpose was to be shown " first to Mr. Wilton in Portland-street, then to Mr. Moore in Berners-street, and whose proposals he most approves, to prefer him to execute it." The monument, however, was not put up, so that Wilton and Moore can have had no soreness on the subject.

Another Abbey monument, that to Dr. Stephen Hales, with its allegorical figures of Botany holding a medallion of the Doctor and Religion deploring his loss, and its extraordinary attempt to express Hales's invention of ventilators by representing the winds blowing upon a globe, certainly shows a lack of imagination on the one hand, and an ambition o'erleaping itself on the other; but Admiral Holmes in Roman dress, leaning upon a cannon, is ludicrous, and offers the strongest contrast to the monument to Viscount Shannon in which Roubiliac used contemporary costume to suit the contemporary weapons which he piled about his hero, and avoided the solecism of combining, like Wilton, toga and artillery.

The third of the Abbey monuments, that to Pulteney, Earl of Bath, is in the same allegorical manner as the Hales, with Wisdom and Poetry displaying an urn and a medallion.

Far more imagination, far greater beauty is shown in the angel monuments which mark Wilton's highest flights as sculptor, that of Lady Anne Dartrey, which, being in Ireland, the writer has not seen, and that to the Earl and Countess of Mountrath, which, though no writer on Wilton appears to say so, is no farther away than Westminster Abbey. When the contemporary gush about the Mansions of the Blessed is set aside, we have to confess that the angel who is raising the dead Countess and pointing her to the skies, where another angel awaits her with a crown of glory, is quite beautiful. He is doubtless borrowed from Raphael's Deliverance of St. Peter, but he is nevertheless very fine; not so sentimental as Bernini's seraphs, not so earthly and feminine as those of later sculptors, he is wrought with rare delicacy and beauty, and the wings are beyond praise. Anything remoter from the works of his masters Delvaux and Pigalle it is hard to conceive; but, with Roubiliac's unexecuted model of the Wolfe in our mind, we have some suspicion that they were borrowed from that winged Victory of the earlier sculptor, which precedes all Wilton's monuments and may well have coloured the design, though not the style, of this dominant figure of the Mountrath monument, whose upper part has been removed.

That Wilton represented George III. on the Royal Exchange in 1764 as a Roman emperor, and in Leicester Square as the modern Marcus Aurelius, cannot justly be objected to him. The latter, a leaden figure, was, however, entirely modelled by a French artist named Beaupré, and must have been badly done at that, since as early as 1812 it was in a ruinous condition. Another monument by him, one of the few to be seen in the provinces, is that to Sir Thomas Street, the judge of later Stuart days, in the Cathedral at Worcester. The writer can only enumerate besides that to Wriothesley, second Duke of Bedford, and his Duchess at Chenies, executed in conjunction with Sir William Chambers; the very interesting architectural monument to Sir Hans Sloane (ob. 1753) in the churchyard of Chelsea Old Church; the miserably poor monument to his daughters, " two affectionate sisters," Lucy Smith and Anne Wilton, who died within a few months of each other in 1781; " a figure of Hope leaning upon an Urn in alto-relievo " in St. Benet's, Cambridge, to one of the Lockwoods (Nichols, " Lit. Anec.," VII. p. 137), for the erection of which the Rector's permission cost £10 10s.; that of Sir William Browne, of Cambridge gold medal fame, from which the profile on his monument in Hillingdon Church, Norfolk, is copied; a statue of the younger Pitt at Cork; a poor bust of Sydenham in the Royal College of Physicians, and, finally, the one surviving royal statue of Wilton's, the George II. in the Senate House at Cambridge, of which we may say, in the words applied by J. T. Smith to the George III. of the Royal Exchange, " it is by no means a successful performance."

Another class of his works, his busts of contemporaries and great men of the past, will be best prefaced by an account of his contributions first to the exhibitions of the Society of Artists, next to those of the Royal Academy, of which George III. nominated him a Foundation Member. These are best presented chronologically and from the catalogues.



MONUMENT TO SIR HANS SLOANE IN THE CHURCHYARD OF CHELSEA OLD CHURCH. By Joseph Wilton, R.A.

Society of Artists:

1760. A marble bust.
1761. A bust of Mr. Roubiliac. (The mask was sold at Wilton's sale in 1786, and both have been lost sight of.)
A bust, in marble, of Oliver Cromwell.
1762. A marble bust.
1763. A marble bust representing Omphale.
A model of a bust of a gentleman.
Ditto.
1764. Bust of a Gentleman. (The sculptor is described as Statuary in Ordinary to His Majesty.)
1765. Large marble bas-relief representing Neptune bringing treasures to Britannia.
Bas-relief representing Friendship.
Model of a statue of Peace.
1766. Bust of a gentleman; in marble.
Bust of Oliver Cromwell, from the noted cast of his face preserved in the Duke's Gallery at Florence.
1767. Busto of Lord Bacon, a model.
A marble Bust of Lord Camden.
1768. Bust of Sir Isaac Newton, a model (perhaps that now at the Bodleian).
Bust of Lord Bacon.
Model of Peace.

After 1768 his work naturally appeared at the Royal Academy, which now owns the splendid bust of him by Roubiliac, holding a sculptor's hammer, already noted under that artist's name, which was presented by his only surviving and " exquisitely beautiful " daughter—the phrase is Dr. Johnson's—Lady [Robert] Chambers.

The list of works exhibited at the Academy will show how much has been lost sight of:

1769. A marble Bust of a Lady.
1770. A Bust of a Gentleman, a model.
1771. A Bust of a Gentleman (in marble).

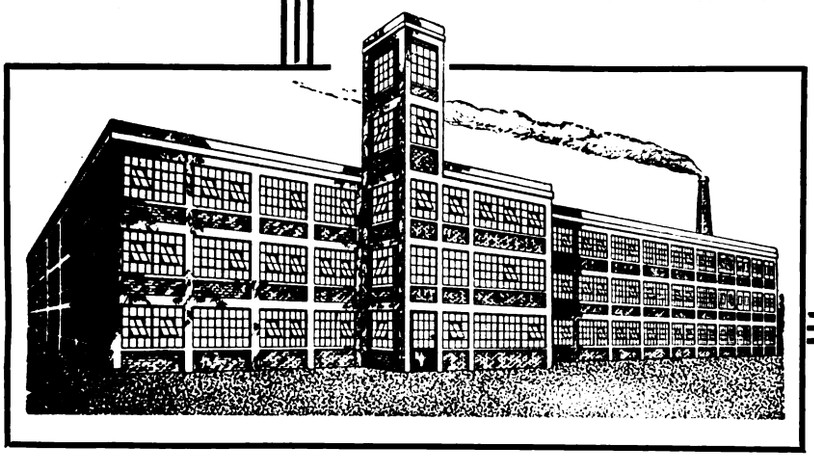
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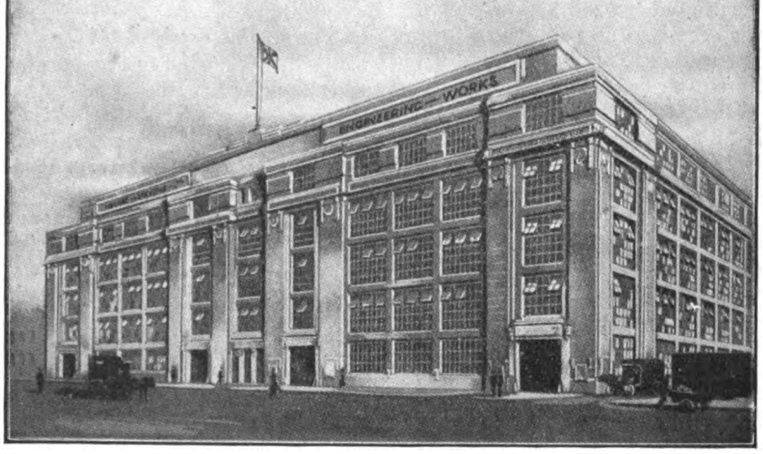
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1772. A Bust of a Nobleman (in marble).
Hymen (a model in terra-cotta).
1773. Mutius Scaevola before Porsenna (a model)—Tit. Liv., lib. i.
1774. A Senatorial Figure (a model).
1777. A Bust (in marble).
1779. A Bust of the late Earl of Chatham.

This list, even allowing for the aggravating anonymity of eighteenth-century catalogues of contemporary portraits, includes only a certain number of Wilton's busts as given on the authority of J. T. Smith. The Bacon, Cromwell, Newton, Campden, and Chatham have already been mentioned, but some of those which follow may have been exhibited without a name. Lord Dartrey, afterwards Lord Cremorne, husband of the Lady Anne whose monument has been already mentioned; Thomas Hollis; Admiral Holmes, whose monument has been discussed; Lord Huntingdon; a Dr. Hokey (can this be the Count Holke referred to by Horace Walpole?); the Italian man of letters, Vicenzio Martinelli; General Wolfe, whether from life or not it is impossible to say (if the former, it must have been one of Wilton's earliest works in England); another Newton and a Michael Angelo for Somerset House; Admiral West, and Dean Swift, the last now completely lost sight of, and not alluded to in Sir Frederic Faulkener's exhaustive article in Vol. X. of the Temple Scott edition of his works.

At Somerset House, the masterpiece of his friend Chambers, Wilton executed the four figures representing the four quarters of the globe on the attic on the courtyard side, as well as the busts of Newton and Michael Angelo in the vestibule already alluded to, but the whole execution of the former, like that of the Wolfe, was entrusted to Smith and Adkins, Wilton not even troubling to make a model, but leaving his assistants to carve them direct from the drawings.

Wilton's disinclination for art grew on him with his increasing wealth. His father had left him a large fortune; after 1781 he had only one child, the beautiful daughter already alluded to; he lived in a sumptuous manner, with a town house in Dean Street and country houses at Snaresbrook and Hammersmith; and in 1786 he sold his stock and retired into private life, though holding the Keepership of the Royal Academy from 1790 to 1803.

As we have seen, even in his early works, he was apt to confine himself to the modelling, leaving their completion to the sculptor's "ghost," who was to play a part so evil in the history of English art. He is therefore the herald of a new era, the era of false convention and cold finish, which was to bring English art into such discredit during the next fifty years; and though, owing to the part he plays in the social circles of the day, he is better known than his predecessors, Scheemaker and Rysbrack, he is far inferior to them as an artist. Of the influence of Pigalle there is curiously little in his larger works, which often are clumsy followings of Scheemaker and Delvaux.

Other works, besides those already mentioned, are a bust of Richard Gipps at West Harling, Essex; one of Lord Rockingham "and many others" at Charlemont House, Dublin; the admirable bust of Newton in the Bodleian, perhaps that exhibited at the Royal Academy; and a full-length statue of Archbishop Tillotson in the church at Sowerby, near Halifax, his native place, erected by an eighteenth-century admirer of the name of Stansfeld.

As a restorer Wilton is chiefly known by his connection with the Richmond Torso of Venus, originally a purchase of his patron Locke, in the British Museum, though his restorations, now removed, were so poor that the Duke of Richmond, the next owner, ordered it out of his sight. A very large part of Wilton's business, indeed, was not with the more dignified aspect of sculpture at all, but with such purely decorative adjuncts to house decoration as chimneypieces and architectural ornaments. His friend Sir William Chambers was in constant requisition as an architect, and it was to Wilton that he went for all such details, though even the most ornate of these, as Smith says, were sometimes "executed upon speculation." This may explain the dearth of Wilton's works in our public collections, not one of which can show anything of his save the Chesterfield bust in the British Museum; there is not even an example in the Diploma Gallery.

It is indeed something of a mystery why this courtly, smooth-spoken, well-dressed man should have been elected R.A. at a time when Rysbrack and Scheemaker were both in England. Their age, it is true, may have been against them, but that they would have represented English sculpture more adequately than Wilton does not admit of a doubt; they had been in England far longer than Cipriani and other foreign members, and Rysbrack at least had had the honour of many royal commissions. Still, Wilton has his merits as a sculptor. His angels are of peculiar grace and beauty, and his busts are greatly above the average of those executed in England after the death of Roubiliac. Further, his knowledge of anatomy is considerable, though the credit which some critics have assigned him on this score must be considerably modified when we reflect that their execution was almost wholly left to his assistants. The date of Wilton's marriage and the name of his wife are both unknown, but as one daughter buried at Chelsea was born in 1748, he must have married in 1747; "the beautiful Miss Wilton" was sixteen in 1773, and her sister, also buried at Chelsea, was born in 1758. The slab which records them both, with its deplorable urns in high relief, is frankly unworthy of the sculptor's signature.

Wilton was an early member of the Society of Arts, and his friendly disposition and cordial good-fellowship led to his house being a centre of the social life of the day. The age of coffee-houses was passing, that of evening parties beginning. Where Hogarth and Roubiliac had foregathered at Old Slaughter's, Wilton and Banks assembled the *literati* at their houses, and society rewarded them by recording the said parties in memoirs and the like. The warmer the hospitality, the better the notice, and the good dinners at Wilton's were rewarded by something like adulation of his work as a sculptor on the part of Dr. Johnson's friend Baretti. Wilton, in short, would have been a greater artist had he been a less prosperous man; but after the debts and difficulties of Roubiliac it is soothing to human weakness to contemplate a really wealthy sculptor, just as it is comfortable to realise, after a dose of Grub Street, that there was one poet of the age at least—Moses Mendez—who died worth £100,000.

The Society of Architects "Victory Scholarship" Competition.

The entries received this year for the "Victory Scholarships" were even more numerous than those of 1921, and numbered 66 altogether. Fifty-six designs were received from competitors sitting at Cambridge, Glasgow, Leeds, Liverpool, London (two centres) and Sheffield, on Saturday, June 10, from 10 a.m. to 10 p.m. The programme, which was handed to each competitor upon arrival, consisted of a ceremonial staircase. The jury of assessors, after long and careful deliberation, submitted the following report:—

> We, the undersigned, being the Jury of Assessors in the Society of Architects' Victory Scholarship Preliminary Competition, have to-day selected ten drawings bearing the following index numbers for the final competition: 63, 65, 68, 71, 81, 95, 97, 99, 107, 116.
>
> Signed: Arthur J. Davis, Edward R. F. Cole, T. Harold Hughes, F. Billerey, H. C. Hughes, L. Sylvester Sullivan, Howard Robertson, L. H. Bucknell.

The authors of these designs were then declared to be as follows:—

J. A. Jellicoe, of London (63); J. C. Shepherd, of London (65); N. C. Mackey, of London (68); D. Brooke, of Liverpool (71); G. F. Shanks, of Glasgow (81); E. N. Channon, of London (95); H. St. John Harrison, of London (97); A. S. Knott, of London (99); Keith D. P. Murray, of London (107); P. Hardy, of London (116).

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